



FRIDAY, DECEMBER 31.

The Screw Lever Dump Car.

Our engravings represent a side view of this car with the car-body tipped over, and an end view in the same position. The body is attached to the trucks by knuckle-joints at the centre, which permit the former to tip over to either side. The floor timbers are so arranged as to clear the running gear when the body is in the position shown. The movement of the body is effected by two longitudinal shafts which extend the whole length of the former, and have worm wheels on one end. These are shown in the end view. Into these wheels a worm, attached to a vertical shaft, gears, the latter being operated by a hand wheel, as indicated in the engraving. Each of the longitudinal shafts has a drum at each end on which a chain is wound. The latter passes over a pulley attached to the car-body and then down, and is fastened to the truck. By slackening up the chains on one side and winding up those on the other the body is tipped, and after the load is discharged the reverse operation brings the body back again. All this can be done, it is said, in from two to three minutes.

The car was invented by Mr. Matthew Van Wormer, of Dayton, O. The patents for New England are owned by the New England Car Company, whose address is No. 48 Congress street, Boston. The car represented by the engraving was built at the Wason Car Works, at Brightwood (Springfield), Mass.

The Late E. E. Barney.

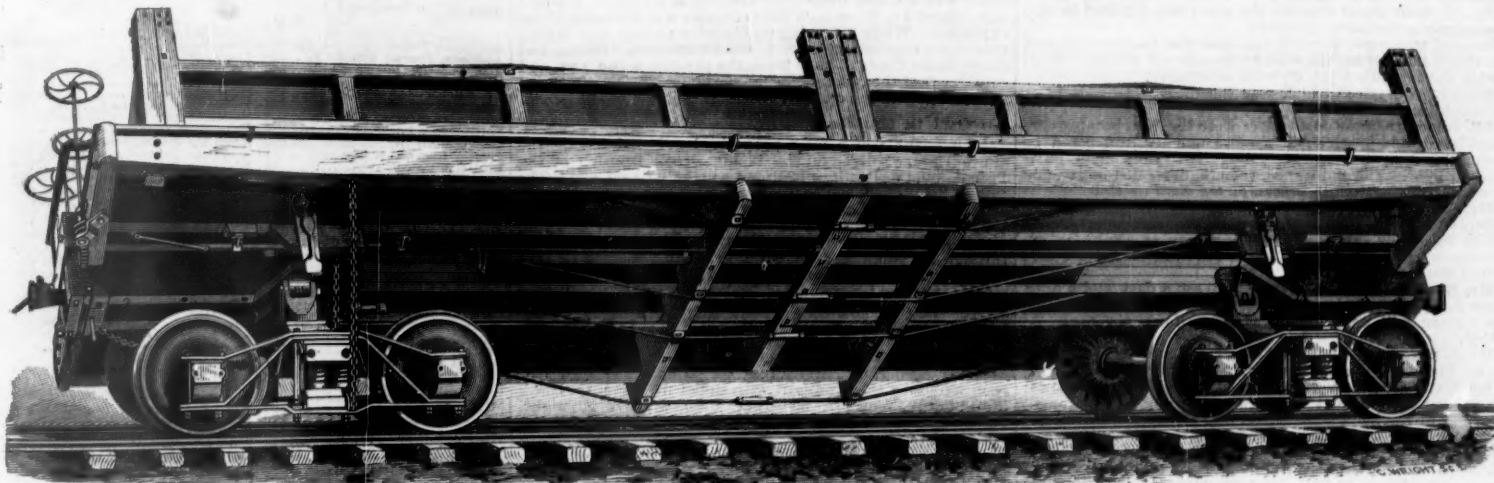
There is perhaps no one engaged in business connected with railroads whose death could cause more wide-spread sorrow than has that of the president of the Barney & Smith Manufacturing Company, which was announced last week. He was widely known, and of such a singularly gentle and kindly nature that he attracted all who were brought into intercourse with him. It is rare indeed to find

were passed among the usual scenes of a frontier settlement at that day.

About his sixteenth year his father, who had been fairly prosperous up to this time, was induced to indorse some notes for his brother, the uncle of Eliam, who owned a farm in Adams township, in the same county. Very soon afterward this brother was drowned, and the burden of debt thus imposed was a serious calamity. In order to pay off the notes the family had to leave Henderson, and move on to the farm at Adams. About the same time also losses by fire added to their misfortunes. But these trials were the means in God's providence for developing the character of all the children, and especially of him whose completed life to-day stands before us. The earnest boy entered at once into his father's cares. He worked so hard on the farm that his health broke down, and the beginning was then made, it was feared, of physical infirmities that followed him for years. Over his younger brothers and sisters he exerted a commanding but loving influence which they were always ready to acknowledge with pride and joy. He was watchful over their interests, guarded them from temptation, and inspired them with his example. Amid all his difficulties, his father, with a keen

"Mr. Barney, I owe all I am to you. Do you not remember that when you taught school in New York state, there was one boy on the front row whom everybody thought was stupid—who supposed himself to be a fool? You watched him, you sat down beside him, you made him believe he could be something after all; and to-day he is permitted to express his gratitude." Many such precious acknowledgments was Mr. Barney permitted to receive during his life. His father had signed his notes for the money which he had borrowed to help him through the latter part of his college course, and he felt an obligation to remain at Lowville until he had earned enough to meet this indebtedness, but he had become much interested in accounts from Ohio, and was convinced that he could do more for his brothers and sisters if the family would move westward. He advised his father to sell out everything and to make the change, promising to follow himself as soon as he had paid off the debts. When the time came for them to start in their covered wagon he accompanied them a day or two upon the way, being specially anxious on account of his mother, who was in delicate health, and who was severely ill upon the journey. The scene is remembered by his sister when, cheerily bidding them to "push along and keep moving," he waved his adieu to the little caravan and returned to his work of teaching. It was two weeks' journey for the family to their new home near Cleveland, where Eliam, after some months, joined them.

Tarrying only for a visit with the family, he came on to Granville, O., where what is now Denison University had been lately established, and where he was invited to fill for a few months the place of Prof. Drury, who had been appointed, but had not arrived. This was in 1833. In 1834 he came from Granville to Dayton, to take charge of the old Dayton Academy, which stood where the High School building now stands. He associated with himself his brother and sister as teachers, and although the school at the outset had but nine pupils, such was the vigor of the instruction given that its reputation spread and its numbers rapidly increased. In 1839 and '40 he taught a private school for both sexes in the basement of what is now the Jewish synagogue, when, his health being seriously impaired, he gave up his school, and, purchasing a saw-mill on the canal near Wayne street, engaged in business for about four years. In the meanwhile the Cooper Female Academy had been established. Some of Mr. Barney's old pupils were among its trustees, and observing that his health seemed to be much better, they urged him to become the principal. He consented, and from 1845 to 1851 continued in that pursuit, assisted by Mr. A. E. Stevens and others in training the minds of many who are now to be numbered among our most influential citizens. If I could read to you the names of his pupils you would see how large a part he had in forming some of the best characters among us. Of his teaching it has been well said by one of his old



SCREW-LEVER DUMP-CAR.

a person who has been through so many vicissitudes as his, and whose struggle for existence has at times been hard, and who had borne such heavy responsibilities, and done it successfully, and who yet retained not only the kindness of heart but the tenderness of manner which he did to the last.

In the sermon preached at the funeral services at Dayton, by Rev. H. F. Colby, of the First Baptist Church, of which Mr. Barney had long been a member, a tolerably full account of his life was given, from which the following extracts are taken:

Eliam E. Barney was born at or near Henderson, four miles from Sackett's Harbor, on Lake Ontario, Jefferson County, New York, Oct. 14, 1807. He was the son of Benjamin Barney, a native of Guilford, Vermont, and Nancy Potter, of Connecticut. His father had come to Henderson at the age of twenty-one, had taken up land in the new country, and by diligence and prudence had developed it into a comfortable farm. He was a man of independent character, who preferred to form his own estimates of everything, and who, by private study in his simple home, made up some of the deficiencies of his early education. He was also a captain of militia in the war of 1813, and served in the defense of Sackett's Harbor from the English. His wife was the daughter of a revolutionary soldier. Benjamin Barney was permitted to enjoy a long life, the closing years of which were spent in Dayton, and many of you vividly recall his venerable appearance as he moved among you. Eliam was the oldest of eleven children. His early years

of appreciation of learning, which should be remembered to his honor, never lost sight of a purpose to give his son the best education he could. But he was obliged to say to him, "I fear the most I can accomplish is to give you an education; and then you must help your brothers and sisters to get the same." In furthering this purpose his father joined earnestly with a few others in encouraging the establishment of an academy in the neighboring township of Ellisburg, and in order to be nearer to it, he again changed his residence. It was begun in a rude wooden building, and all the arrangements were on a scale of the strictest economy. One Joshua Bradley was the first principal, who, with his wife and daughter, became inmates of the Barney household. Soon after, a stone building was erected for it, and it has since become widely known as Belleville Academy, celebrating its semi-centennial a few years since. Eliam was one of the first pupils, studying with all his might. He advanced so rapidly that he was able to help himself by teaching in the winter, when he was 18 years of age, and so continued to pursue his studies until he was fitted to enter the sophomore class of Union College at Schenectady, where he was graduated under the able presidency of DeCott in 1831.

After leaving college he taught for a short time at Sand Lake, New York, and then was called to be the principal of Lowville Academy, in the same state. Here he remained two years, meeting with great success. He studied the character of every pupil, and inspired each with an ambition to make the most of life. Last summer, as I was riding with him along the shores of Chautauqua Lake, he told me how a few years ago a gentleman of character and influence approached him in a Southern hotel and asked him if his name was E. E. Barney. Being assured that it was, he said:

scholars, that "from first to last it was attended with great success, and the occupation being one for which he seemed peculiarly fitted, in it he attained a high reputation."

In 1850 he joined with Mr. E. Thresher in starting the Dayton Car Works. Their capital was limited, and the business was at first carried on upon a very moderate scale, but prudently and successfully. In 1854 Mr. Thresher was succeeded by Mr. Caleb Parker, who ten years after sold out to Mr. Preserved Smith. With the progress of this enterprise you are all so familiar that it is unnecessary for me to speak in detail. You know its extensive growth, its prosperity and its reputation. For many years Mr. Barney has been its head. It is not often that a man eminent in a literary calling can change to a business life and achieve in the latter anything like remarkable success.

Mr. Barney was a striking exception to this rule. Beginning to give money liberally out of his poverty, when he was a young man, he continued to do so in ever increasing sums as he prospered even to the last. He would not give recklessly, or from mere sentiment. It was a matter of principle with him. Unlike most men, he laid his plans to give, and to give so that his giving might induce others to be liberal also. Especially was he a benefactor of Denison University, where more than \$60,000 have been bestowed by him.

His unselfishness was manifested in late years by the interest which he took in the culture of the Catalpa tree. After thorough investigation he was convinced of its value as a timber tree, and for some years past he spared no expense nor pains to disseminate information concerning it, and distribute seed for its propagation. His efforts in this direction were as absolutely disinterested as it is possible to con-

ceive of human motives to be, and the chief pleasure which he seemed to derive from it was the reflection that after he was gone nature would second his efforts to benefit his fellow men.

He has left a wife and three sons, two of whom, Eugene J. and Edward E. Barney, are engaged in the car works. The third son, Albert C. Barney, resides in Cincinnati, and is a graduate from Princeton College.

At a meeting of the foremen of the extensive works of which Mr. Barney was the head, the following, among other resolutions expressing sorrow and sympathy, was adopted:

Resolved, That we and the entire community have lost a friend whose value can scarcely be estimated; one diligent in business, far seeing and accurate in judgment, sympathetic with associates, the friend of the working class, and a conscientious Christian.

Master Car-Builders' December Meeting.

After reading his paper on car-painting, published last week, Mr. WHITE called attention to the fact that the painting of freight cars on most roads cost much more money than the painting of passenger cars, owing to the greater number of the former.

Mr. MILLS inquired why it is that varnish perishes more quickly in winter than in any other dark color. He also deprecated the use of turpentine in priming, and said that the object of priming was to prevent moisture from attacking the wood. If turpentine is used, it evaporates from the oil and leaves it more or less porous.

Mr. WEAVER agreed with Mr. MILLS and found that oil and lead without turpentine were preferable. If the latter is used, the priming sinks into the wood and leaves a dead surface. He uses a coat of priming and two coats of lead, and has abandoned the use of "rough-stuff." On this he puts three coats of body color. He is engaged in painting street cars, and in that kind of work durability is of more importance than a high finish. When a vehicle strikes a car which has been primed with turpentine, the paint comes off, sometimes like an egg-shell, but on those cars primed with oil it stands much better. He had used both English and American varnish, and has found that the latter stands equally as well as the former. He had painted nearly all the mail wagons running in New York. He found great trouble with vermilion; has used Japan with it, but this increases the tendency to flake off, and the color would often change and dark blotches would come out on the surface. He then used gold size, and also mixed the vermilion with oil and turpentine, but the last wagon painted with oil began to turn before it left the shop. He thought there must be some impurities in the oil, and would like to know how these can be detected. He had also found trouble with ultramarine blue in getting it to stand.

Mr. WILLS said vermilion with pure linseed oil would hold its color the best. The difficulty with ultramarine blue is that we do not get any that is pure.

Mr. BROCK favored the sponging of wood before painting, but thought that sandpapering afterward was worse than useless, as there is a tendency to flake off when paint is applied to a perfectly smooth surface. He would rather have woodwork finished without sandpapering.

Mr. WILLS said he could not understand why paints will not hold on smooth surfaces. If a piece of tin is rubbed over very sparingly with paint it can be twisted as much as you like after the paint is dry and it will stay, but if turpentine is used, then all the paint will come off.

Mr. BROCK said that was because when the paint is new it is elastic. After it has been on a few years it loses its elasticity and will not stretch.

Mr. MUNROE asked whether the wood was allowed to dry thoroughly after being sponged?

Several members answered yes, and Mr. BROCK said that the object in applying the water is to take off the hard finish which the carpenters put on with sandpaper.

Mr. SMITH inquired which was the most durable, light or dark colors, on cars?

Mr. BROCK thought dark colors were the best, because cars could be painted in such tints more quickly and could be restored easier after they grew dingy than they could be if painted light. The endurance, though, depended more upon how the painting was done than on the color or tint.

Mr. CAMPBELL asked whether a car could be painted more cheaply of a dark color than of a light color. Some dark colors were very expensive, whereas there are light colors, like straw color, which are cheap. He thought light colors would stand the best.

Mr. BROCK said the difference between a dark and a light color for a car is that after being in service for some time the former will be of much more uniform tint than the latter.

Mr. WILHELM said he had always found light colors the best. The sun is death to varnish on a dark color.

Mr. PARK for nearly 25 years had painted cars as follows: He primed all new work with raw oil, adding thereto a small quantity of English patent dryer, and after that coating was thoroughly dry he put it up the holes, and when that was well set he gave the car another coat of light color, adding a slight quantity of turpentine, and after that was thoroughly dry he was obliged to face his work down, which he did by giving two coats of rough-stuff and one light coat.

Then he faced his car down with pumice stone and water, and after it was done dusted it off and applied his first coat of paint. From the facing down of the car until it was finished he used no sandpaper. He gave three coats of very thin body color, giving about 12 to 24 hours between coats. He added a little varnish so as to give it a slight gloss. Then he rubbed it down with fine pumice stone, striped it and gave it an additional coat of rubbing varnish, rubbed slightly again and finished with one coat of wearing body varnish. Cars thus finished ran on an average from 12 to 14 months without a coat of paint. If you do not get the foundation right you will have a bad job. In mixing his color he uses one part turpentine, two parts Japan, and one part varnish, and he found that it worked well and did not crack. The color on cars running east and west continuously perishes more on the south side.

Mr. PAGE said the trouble with linseed oil was that moisture gets into it, and we do not keep it long enough to allow this to evaporate. If the gentleman who complained of the difficulty of getting good oil would insist on having an old oil, he would not have the trouble of which he complained.

Mr. ADAMS said much of the difficulty in painting consists in the time allowed. On a line he knew of, only fifteen days were allowed for painting a passenger car. On the road with which he was connected they could not paint a passenger car thoroughly in much less than two months. Some of their cars had run nine years without repainting. He preferred a light to a dark color, because the former reflects and the latter absorbs the rays of the sun.

Mr. MONROE proposed to decide whether dark or light color was best by a vote!

Mr. ADAMS said that when a car is running along a sea or lake shore the paint on the side next to the water perishes first. On the Lake Shore road this is the north side, whereas on the New York & Boston Shore line it is the south side.

Mr. BARBOUR said that seven or eight years ago his road

had two drawing-room cars, which were used for summer travel. In the fall they were cleaned and varnished, and run into the car house alongside of the station wall, which was very damp. The following spring it was found that on the side and the end of the car next to the wall the varnish was almost entirely destroyed, and stood out in little shreds. On the cars which run on the New York & Boston Express Line, the paint on one side and end perishes much faster than the other side, and on cars running through to Albany, the south side and west end always perish sooner than the others.

The meeting then adjourned.

THE SCRAP HEAP.

Railroad Equipment Notes.

The Michigan Car Co., at Detroit, is now at work on an order for 300 coal cars for the Buffalo, New York & Philadelphia road, and 100 have been delivered so far. They are eight-wheel cars, built to carry 20 tons each.

The New Albany Steam Forge Co., at New Albany, Ind., is filling some large orders for car axles.

The Union Brass Manufacturing Co., in Chicago, has large orders for brass and bronze trimmings for cars.

Iron and Manufacturing Notes.

The Joliet Iron & Steel Co., at Joliet, Ill., has contracted to supply the Atchison, Topeka & Santa Fe with 15,000 tons of steel rails at \$60 per ton at the mill.

The Indianapolis Rolling Mill in the year ending Nov. 30 turned out 22,227 tons of rails, the largest product ever made by this mill in one year.

Champion Furnace at Menominee, Mich., has been sold at bankrupt sale to A. B. Meeker, of Chicago. The furnace is in blast.

The New Albany Rolling Mill, at New Albany, Ind., is running steadily on iron rails and merchant bar.

The new furnace of Joseph H. Brown & Co., Irondale, near Chicago, is making 135 tons of pig-iron a day.

The Thorn Wire Hedge Co., in Chicago, is about to build an entirely new factory for the purpose of extending its facilities for manufacture.

The United States Wind Engine & Pump Co., at Batavia, Ill., is running its works full time with many orders on hand both for home and foreign countries.

Bridge Notes.

The Clarke Bridge Co., of Baltimore, is building a wrought-iron swing bridge and two turn-tables for the Elizabeth City & Norfolk road, and three wrought-iron bridges for the Baltimore & Cumberland Valley road.

Prices of Rails.

Steel rails are quiet, quotation being \$58 to \$60 per ton at mill, according to time of delivery. Some large transactions in foreign rails are reported, sales of 25,000 tons being reported, all for delivery at Southern ports.

Iron rails are quiet, with no large sales. Prices are about \$48 to \$53 per ton at mill for light rails, down to \$46 for heavy sections. Some sales of English rails for Southern roads are reported at prices not made public, but said to be about \$45.

Old iron rails are quoted at from \$28 to \$28.50, with stocks generally light and not much business done.

The Fall River Locomotive Boiler Explosion.

The Massachusetts Railroad Company, having investigated the explosion of a locomotive boiler on the Fall River Railroad on Nov. 3, have made a report in which they find that there was a crack extending the whole length of the fire-box—about 4½ ft.—which they consider was the cause of the explosion. While attaching no blame to anyone, and saying that it is a common practice to run locomotives with cracked sheets in the fire-box, they think the practice a bad one, and consider that the Master Mechanic should not have sent out the engine with the cracked sheet.

An Owl in the Headlight.

An incident which may properly be classed among the appropriate, occurred on the Bound Brook Division of the Philadelphia & Reading Railroad a night or two ago. The "owl" line, which leaves the Ninth and Green street depot at midnight, went along all right until a dozen miles out of town, when the engineer was startled by a crash of glass, and in a second a piece of the headlight plate came crashing through the window of the locomotive cab. Supposing that a small rock had been loosened from some cut by the vibration of the train and had broken the glass, no further attention was paid to the matter. The headlight of the engine, however, soon went out, and when the next stopping place was reached an examination followed. This resulted in the discovery of the body of a horned owl, mangled and bleeding, lying directly across the lamp. The bird had been struck by the headlight with sufficient force to break it and kill the feathered disturber of the silence of the night. The bird has been stuffed, and will be mounted on the top of the cab of the engine that killed it.—*Philadelphia North American.*

Electric Light in the Hoosac Tunnel.

The experiment of lighting the Hoosac Tunnel by electricity yesterday afternoon was a success in most particulars. The local railroad officials and others, numbering about 40, went through the tunnel on a platform car, on the forward part of which was a frame-work with two lamps and a locomotive head-light containing an electric lantern. One of the side burners was broken, so that only two lights were used. The car was pushed slowly along by a locomotive. The generator of 4,000 candle-power was operated by an engine of 20 horse-power, and each of the burners was of 2,000 candle-power. In the parts of the tunnel free from smoke the light thrown was strong enough to do track work over 500 ft. away, and driving spikes and shoveling 1,000 ft. off. Between the central shaft and the east portal, where the smoke was so dense that an ordinary locomotive light would not be visible 10 ft. away, the electric light could be seen for over 100 ft. In some parts of the tunnel one could read by the electric light 250 ft. from the car. Engineer Locke was well satisfied with the experiment. Manager Gardner will soon arrange for the Governor and Council to witness the experiment. If the electric lights are adopted power can be supplied from a turbine water-wheel now lying idle in a shop at the east-end. It is thought that 12 lanterns will light the tunnel, except when the smoke is unusually dense. The box for the new telegraph cable is being laid and the debris removed for the second track.—*Springfield (Mass.) Republican, Dec. 29.*

The Cowcatcher Again.

A few nights ago the freight train on the Savannah, Florida & Western Railway was coming into Albany at the rate of about twenty miles an hour, and a cow was standing on the track. The cowcatcher ran smoothly between her forelegs, lifted her up gently and took her along for some distance, the cow seemingly contented with her free ride. After a while the engineer halted his train, got down and had to force his bovine head-head passenger off the engine.—*Columbus (Ga.) Enquirer-Sun.*

Lost Baggage in Detroit.

Down in the Union Depot there are a thousand carpet-bags, satchels, grab-bags and parcels piled up on shelves to await orders. The collection is known as stray baggage and it is added to or taken from almost daily. The man who has charge of it knows pretty well the contents of each and what he doesn't know he can guess at. Yesterday, when a woman entered his domain and said she was looking for a lost satchel, he promptly replied:

"Very well, madame. We will begin our search in division 'A.' Were both handles off your satchel, the bottom partly ripped off and a red woolen rag sticking out of the side?"

"No, sir."

"Ah! then I missed it. Let's see; here's a satchel which has been here about four weeks. The first thing on top is a red wing and a pair of blue stockings."

"That isn't mine, sir."

"Just so. Belongs to some poor soul who can't be happy without it. Here's a satchel which bears your description, but it can't be yours. The principal contents are a bottle of poor whiskey, an old hat and a dime novel. Can't belong to you, now?"

"No, sir."

"Well, here's another bundle. I should say by the feel that it contained two night-caps, a volume of poetry and a set of false frizzes. Do you identify it?"

"No, sir; I don't."

"Does this satchel resemble yours?"

"Yes, sir."

"Any familiar marks about it?"

"Yes, several."

"Did your satchel contain a package of sixteen love-letters, each one leading off with 'Dear Ben,' and closing with 'your own darling'?"

"No sir—no sir—that isn't mine."

"This one isn't yours, either; because it contains a eucure deck and some faro chips. Now, look up there. Third one from the right, eh? Well, here it is. Is this yours?"

"Yes, sir."

"Glad of it. Can you describe the contents?"

"Yes, sir. The first thing on top is a—"

"Yes, I know—a pair of stockings with holes in heels. They belong to your sister, of course."

"Sir?"

"No offense, ma'am. Many impostors come here, and we must be particular. Please go on."

"The next thing is a—"

"An old corset with a shoe string for a lace—perfectly correct. Please describe the next article."

"I won't do it!" she exclaimed.

"Pshaw, now! but you mustn't take offense. There is a pair of shoes with half the buttons off, a bottle of face powder, a pair of gloves with the fingers off, and"—

"That isn't mine at all!"

"Oh, it isn't, eh! Well, I'm sorry."

"I don't believe mine is here and you needn't go to any further trouble."

"Very well. I shall go to dinner in half an hour. I place this satchel in this corner and I shall tell the old man who relieves me at noon that a boy will come for it. That's all—good-by—hope you'll find your baggage."

When he returned at 1 o'clock the satchel was gone.—*Detroit Free Press.*

ANNUAL REPORTS.

The following is an index to the reports of companies which have been reviewed in previous numbers of this volume of the *Railroad Gazette*:

Page.	Page.
Alabama Great Southern..... 417	Little Miami (P. C. & St. L.)..... 213
Allegheny Valley..... 152, 225	Long Island..... 70
Atchison, Topeka & Santa Fe..... 226	Louisville, Cin. & Lex..... 470, 508
Atlanta & Charlotte Air Line..... 226	Louisville & Nashville..... 388, 417, 550
Baltimore & Potomac..... 132, 152	Maine Central..... 302
Baltimore & Annapolis..... 56, 503	Manhattan..... 198
Boston, Concord & Montreal..... 319	Marietta & Cincinnati..... 584
Boston & Lowell..... 74	Massachusetts Minor Railroads..... 504
Boston & Maine..... 143	Mass. B. & N. Commission..... 504
Boston & N. Y. Air Line..... 403	Memphis & Charleston..... 631
Boston & Providence..... 630	Michigan Central..... 344, 350, 604
Boston, Rev. Beach & Lynn..... 504	Michigan Minor Railroads..... 509
Bur. & Cedar Rapids & No..... 412	Min. Lake Shore & Western..... 320
Bur. & Mo. River in Nebraska..... 56	Minneapolis & St. Louis..... 152, 417
Burlington & Northwestern..... 288	Mississippi & Tennessee..... 664
Calo & St. Louis..... 690	Missouri, Kansas & Texas..... 509
Camden & Atlantic..... 504	Missouri Pacific..... 414
Canada Southern..... 74, 904	Mobile & Girard..... 543
Cape Fear & Yadkin Valley..... 237	Mobile & Montgomery..... 153
Carolina Central..... 331	Mobile & Ohio..... 430, 479
Central of Georgia..... 20, 357	Montpelier & Wells River..... 351
Central of New Jersey..... 153	Morris & Essex..... 312
Central Pacific..... 657	Nashua & Lowell..... 364
Central Vermont..... 417	Nashville, Chattanooga & St. L..... 505
Charlotte, Col. & Augusta..... 151	Naugatuck..... 298
Chesapeake & Del. Canal..... 326	New Hampshire Minor Railroads..... 157
Chesapeake & Ohio Canal..... 319	New Jersey Minor Railroads..... 509
Chicago & Alton..... 136, 156	N. Y. Central & Hudson R..... 694
Chicago & Burlington & Quincy..... 100, 176	N. Y., Lake Erie & W. G. I. R. 12, 643, 679
Chicago & East Illinois..... 523	N. Y. H. & Hartford..... 302
Chicago & Elgin..... 206, 313	New York & New England..... 664
Chicago & Northwestern..... 444, 449	N. Y. Providence & Boston..... 25, 680
Chicago & Pacific..... 96	N. Y. & Ogdensburg..... 11
Chi. Rock Island & Pac..... 351	N. Y. Oswego Midland..... 13
Cin. & West Michigan..... 178	N. Y. & Poughkeepsie..... 317
Cin. Hamilton & Dayton..... 374	Norfolk Central..... 133
Cin. Ind. St. L. & Chi..... 552	Northern (New Hampshire)..... 290
Cin. Lafayette & Chicago..... 302	Northern Pacific..... 538
Cin. & Mt. Airy (P. C. & St. L.)..... 223	Ogdenburg & Lake Erie..... 543
Cincinnati Southern..... 124	Ohio & Mississippi..... 151, 569
Clevo., Col. Cin. & Ind..... 184, 188	Old Colony..... 642
Cleve., Mt. Vernon & Dela..... 500	Oregon Ry. & Nav. Co..... 404
Cleve., Tus. Val. & Wheeling..... 169	Pacific Mail..... 178
Col. Chic. & Ind. Cent. (P. C. & St. L.)..... 213	Pacific Northwest..... 338
Col. & Hocking Valley..... 214	Panama..... 302
Columbus & Toledo..... 214	Pennsylvania Railroad..... 130, 137
Concord..... 236	Pennsylvania & New York..... 320
Connecticut River..... 505	Pensacola & Perdido..... 238
Consolidation Coal Co..... 151	Philadelphia & Reading..... 38
Cumberland Valley..... 152	Phila., W. & Baltimore..... 11
Dayton & Southeastern..... 70	Pitts., Cin. & St. Louis..... 213
Delaware..... 56	Pitts., Fort Wayne & Chicago..... 352
Delaware & Bound Brook..... 512	Pittsburgh & Lake Erie..... 40
Del. & Hudson Canal..... 173	Pitts., Titusville & Buffalo..... 319
Del. & Hud. Can. Leased Lines..... 178	Pitts., W. & Ky. (P. C. & St. L.)..... 231
Del. Lack. & Western..... 70	Portland & Ogdensburg..... 374
Delaware Western..... 75	Prince Edward Island..... 152
Denver & Rio Grande..... 643	Providence & Worcester..... 389
Detroit, Grand Haven & Mil..... 517	Pullman Palace Car Co..... 516
Detroit, Lan. & No..... 500	Quincy, Mo. & Pacific..... 162
Eastern..... 624	Raleigh & Gaston..... 26
East Tenn. & Va. & Ga..... 352, 631	Richmond & Danville..... 108
Evansville & Terre Haute..... 508	Richmond & Petersburg..... 177, 664
Flint & Fergus Falls..... 74	Richmond, York River & Ches..... 543
Galv., Houston & Henderson..... 75	Rome, W. town, & Ogdensburg..... 11
Georgia R. R. & Banking Co..... 296	Rutland..... 436
Georgia R. R. Commission..... 241, 683	St. Louis Bridge Co..... 331
Grand Rapids & Indiana..... 974	St. Louis, Iron Mt. & Southern..... 329
Grand Trunk..... 264, 509	St. Louis & San Francisco..... 553
Great Western..... 264, 509	St. Louis, Van. & Terre Haute..... 96
Hannibal & St. Joseph..... 162	St. Paul & Duluth..... 404
Han. Junc., Han. & Gettysburg..... 312	St. Paul, Minn. & Southern..... 329
Houston..... 338	Seaboard & Roanoke..... 250
Houston & Texas Central..... 304	South Carolina..... 214, 280
Huntingdon & Broad Top..... 96	South Carolina Railroads..... 40
Ind. Cent. & Ind. West..... 118, 123	Southern Pacific..... 329
Indianapolis, Bloom. & West..... 552	Sussex..... 331
Ind., Decatur & Springfield..... 508	Texas & Pacific..... 436

Intercolonial.....	152	Western R. R. Association.....	46
Kan. City, Fort Scott & Gulf.....	578	Western Union Telegraph.....	550
Kan. City, St. Jo. & C. Bluffs.....	598	West Jersey.....	508
Kentucky Central.....	519	Wilmington, Col. & Augusta.....	108
Knoxville & Ohio.....	530	Wilmington & Weldon.....	108
Lake Erie & Western.....	594	Wisconsin Central.....	318
Lake Shore & M. R.....	352, 958, 694	Wisconsin Valley.....	178
Lehigh Coal & Nav. Co.....	107	Worcester & Nashua.....	237
Lehigh Valley.....	187		

Hannibal & St. Joseph.

This company presents the following statement for the year 1890, December partly estimated:

	1890.	1879.	Inc. or Dec.	P. c.
Gross earnings.....	\$2,574,340	\$1,997,406	I. \$576,934	28.9
Expenses.....	1,327,872	1,233,422	I. 104,450	8.5
Net earnings.....	\$1,246,477	\$773,984	I. \$472,493	61.0
Construction and equip.....	139,464	139,902	D. 438	0.3
Balance.....	\$1,107,013	\$634,082	I. \$472,931	74.6
Fixed charges.....	654,640	657,320	D. 2,680	0.4
Balance.....	\$452,373	Def. \$23,238		
Proceeds from free lands.....	63,505	37,191	I. \$26,314	71.1
Total.....	\$515,878	\$13,953	I. \$501,925	
Dividends on preferred stock.....	330,395		I. 330,395	
Balance, surplus.....	\$185,483	\$13,953	I. \$171,530	

One dividend of 3 per cent. on the preferred stock was paid Aug. 2 last; another of 3½ per cent. has just been declared and is to be paid Feb. 1 next. This makes in all 6½ per cent. on the preferred stock from the earnings of 1880. Previous to last August no dividend had been paid for ten years.

New York Central & Hudson River.

The reports for the year ending Sept. 30, 1890, has been made to the State Engineer and Surveyor. This report is made upon the new form prescribed for the state report, but, as this form was not prescribed until near the end of the year, it was not always possible to fill the additional requirements. Some of them were filled, however, and this makes the report slightly different from those of previous years.

The property worked by the company was as follows:

Miles of road:	
Main line, New York to Buffalo.....	441.75
Branches owned.....	314.80
Branches leased or operated.....	257.77

Total worked.....1,013.32

This is the same mileage as worked last year, with a slight correction in the length:

Miles of track:	On main line.	On branches.	Total.
Second track.....	441.75	74.41	516.16
Third track.....	238.54	3.85	242.39
Fourth track.....	223.27	3.85	227.12
Sidings and turn-outs.....			512.00

Total length of tracks.....2,532.69

The equipment at the end of the year was:

	1890.	1879.	Inc. or Dec.	P. c.
No. locomotives.....	631	504	8	1.6
No. dummy locomotives.....	8	8		
No. cars.....				
1st class passenger.....	345	364	19	5.2
2d ".....	162	167	5	3.0
Baggage, mail and express.....	17,103	16,486	617	3.7
Freight cars, 8-wheel.....	150,000			
" 4-wheel.....	2,292			

The chief changes in equipment during the year were as follows: An addition of 37 to the stock of locomotives; 34 new passenger cars built, against 34 demolished and 36 sold; (on account of this reduction in the stock, capital account is credited with \$102,000). The company built 272 new freight cars in its own shops, and 3,000 built elsewhere, and 363 were demolished, making a net gain of 2,909.

Other items of property reported for 1880 are 61 machine and car shops, 50 engine-houses with stalls for 592 locomotives, and three elevators with an aggregate capacity for 3,450,000 bushels of grain.

The reported cost of this property at the close of the fiscal year, with the increase or decrease of each item during the year was as follows:

	1880.	Inc. or Dec.	P. c.
Grading and masonry.....	\$19,635,863.98	I. \$35,955.87	0.2
Bridges.....	2,587,798.63	I. 52,342.89	2.0
Superstructure, including iron and steel.....	24,488,709.13	I. 73,093.45	0.3
Pass and freight stations, buildings, etc.....	13,061,458.06	I. 314,946.59	2.5
Land, land damages and fences.....	13,623,353.58	I. 1,085,915.08	8.7
Locomotives, fixtures and snow plows.....	6,173,736.79	I. 252,050.00	4.2
Passenger and baggage cars.....	1,412,292.79	D. 102,000.00	6.7
Freight and other cars.....	11,863,187.43	I. 1,569,165.50	15.2
Engineering and agencies.....	2,669,473.27		
Rochester & Lake Ontario Railroad.....	150,000.00		
Buffalo & Niagara Falls Railroad.....	658,921.56		
Lewiston Railroad.....	400,000.00		
Syracuse Junction Railroad.....	732,297.57	I. 732,297.57	
Junction Railroad (Buffalo).....	219,000.00	I. 219,000.00	
Saratoga & Hudson River Railroad.....	2,000,000.00		
Totals.....	\$105,207,053.00	I. \$4,233,636.95	4.2

Of the increase of \$4,233,636.95 in the cost of road and equipment, \$952,197.57 was due to the purchase of two short lines hitherto leased, \$1,719,215.50 to additions to equipment, and \$1,400,861.67 to additions to land and station buildings, all the other charges being insignificant.

The chief expenditures for land were:

At 66th st., New York City.....	\$985,389.45
At Buffalo.....	380,948.61
At Syracuse.....	28,232.11

The expenditures for additions to stations were \$144,471 at Buffalo, and all the rest at different points in New York City.

The balance sheet, which is the first ever reported to the state, is as follows:

ASSETS:	
Cost of road and equipment:	
Expended by companies previous to organization of N. Y. C. & H. R. Co.....	\$105,007,053.69
Certificates issued on consolidation in 1890, and representing cost to N. Y. C. & H. R. Co. of other lines owned:	31,157,904.00
Hudson River bridges.....	\$1,075,542.28
Dunkirk, Allegheny Valley & Pittsburgh R. R.....	2,920,621.00
Geneva & Lyons Railroad.....	331,889.93
	4,928,053.28
	\$141,093,010.97

Brought forward.....\$141,093,010.97

Real estate outside of road in New York and Troy.....1,173,500.36

Advances on Harlem Construction.....\$60,009.40

Company's own stock held.....184,200.00

Stock in other roads:

Troy Union.....15,000.00

Buffalo Cross-town.....12,684.77

Merchants' Dispatch.....780,575.60

United Pipe Lines.....24,850.33

Pittsburgh & Lake Erie.....100,000.00

N. Y. C. & Niagara River.....28,100.00

Stock and bonds, Syracuse, Geneva & Corning.....\$80,010.00

Jamestown & Franklin Railroad bonds.....127,500.00

Fuel and supplies on hand.....1,071,989.01

Cash on hand.....1,322,565.72

Station balances.....\$1,747,418.37

Connecting railroad balances.....986,037.93

United States.....323,913.95

Harlem equipment.....608,049.12

Sundry open accounts.....404,394.22

Total assets.....4,176,554.76

LIABILITIES.....\$149,437,021.42

Capital stock.....\$89,428,300.00

Funded debt.....30,733,333.33

Unfunded debt.....5,319,440.11

Balance.....14,956,547.98

Total liabilities.....\$149,437,021.42

The details of other lines owned, of stocks and bonds owned, of supplies, cash and accounts receivable in the assets are all given for the first time, as is the unfunded debt, only one comparatively small item of which, the bonds assumed in purchasing real estate, were ever reported before. The items of this unfunded debt are also given, as follows:

Pay rolls and operating expenses unpaid.....\$2,390,681.20

Due other railroads.....2,424,357.47

Interest due and unpaid.....2,153.62

Dividends unpaid.....27,311.42

Open accounts.....none

Bonds past due.....2,560.00

Real estate bonds assumed in purchasing land.....472,346.31

No.....\$5,319,440.11

This unfunded debt is not very different from (\$1,143,000 more than) what we may call the "floating assets"—cash, accounts receivable, supplies on hand, etc.

The work of the year was as follows:

	1879-80.	1878-79.	Inc. or Dec.	P. c.
Train-mileage:				
Passenger.....	5,080,311	4,842,148	I. 244,163	5.0
Freight.....	11,507,707	12,019,361	D. 451,654	3.8
Switching and working.....	5,568,750	5,079,248	I. 489,501	9.6
Total.....	22,222,777	21,940,757	I. 282,020	1.3

Traffic:

No. passengers carried.....8,270,857

Passenger-miles.....8,130,543

Average journey, miles.....40.0

Av. train-load, tons.....65.0

No. freight cars carried.....10,533,038

Ton-miles.....9,015,753

Average haul, miles.....254.7

Av. train-load, tons.....218.3

The increase of 13.7 per cent in passenger traffic (mileage) was carried with an increase of 5 per cent in mileage of passenger trains, and the increase of 10 per cent in freight traffic was done with an actual decrease of 3.8 per cent. in freight-train mileage, the average train-load having increased 23.0 tons, or 12 per cent.

Some particulars concerning traffic not given before the last year are as follows:

	1st class.	2d class.	Emt. grant.	Total.
No. passengers:				
Through.....	80,729	3,389	32,905	123,023
Way.....	7,227,732	5,251	19,551	8,147,834
Commuters.....	895,300			

Total.....8,200,761

Tons freight: West-bound.....8,640

Through from or to New York.....347,251

Albany.....333,898

Way freight.....3,088,057

Express and News Co.....48,905

Total.....681,149

The through freight from and to New York includes shipments from New York to Buffalo or Suspension Bridge, and from Buffalo and Suspension Bridge. Through from and to Albany includes the through freight of the New York Central Division, between Albany and Buffalo Suspension Bridge. The freight interchanged at other way points than Albany is not given, but it includes all that is not given above; it was 2,677,787 tons.

It appears thus that the business between the western end of the road and Albany is just about equal to that between the western end of the road and New York. It has been currently reported, that the Albany business was one half more than the New York business, but we understand that it was not so much as that, though heretofore generally decidedly more. The west-bound business from New York is a little larger, but the east-bound to it a little smaller.

The ton-miles of through freight, calculated on the basis of 442 miles from New York and 300 from Albany through freight, were:

	West-bound.	East-bound.	Total.
Ton-miles:			
New York, through.....	153,484,042	747,308,000	900,853,092
Albany, through.....	100,160,400	523,088,000	623,867,400

Total.....253,654,342

Leaving for way and other freight.....1,000,417,843

The percentages of the total are:

	West-bound.	East-bound.	Total.
New York, through.....	6.1	29.6	35.7
Albany, through.....	4.0	20.7	24.7
Total through.....	10.1	50.3	60.4
Way freight.....			39.6

Total.....100.0

Thus, though half of the number of tons of through freight come to or leave the road at Albany (chiefly New England business), the haul is so much shorter that this gives the road but two-fifths of its through tonnage mileage. In both New York and Albany, through business, the shipments east are just about five times as much as the shipments west. The through traffic (so defined) is a trifle more than two-thirds of the whole. A very considerable other traffic is carried at through rates and interchanged with other roads, which is not included in the "through" given above,

including all the coal delivered at the western terminus of the road.

The through passengers include we believe those over the Harlem road (a small number), but if they all passed over the greatest length of the road, they would have made a passenger mileage of about 55,000,000, leaving 276,000,000, or five times as much, from the way passengers. Assuming all the through passengers to have traveled between New York and Buffalo, there was an average of nearly 200 each way daily from each place.

The leading freights carried were:

	1879-80.	1878-79.	Inc. or Dec.	P. c.
Products of the forest.....	Tons. 570,410	P. c. of total. 5.4	Tons. 429,361	P. c. of total. 4.8
" " animals.....	584,107	5.6	1,041,356	11.5
Vegetable food.....	3,361,402	30.9	3,067,813	34.0
Other farm products.....	491,526	4.7	508,669	5.6
Manufactures.....	1,556,367	14.8	1,078,405	12.0
Merchandise.....	671,630	6.4	656,774	7.3
Coal.....	1,639,506	15.5	1,280,727	14.3
Live stock.....	607,306	5.8		
Petroleum and other oils.....	430,975	4.1	943,808	10.5
Other articles.....	719,719	6.8		

Total.....10,533,038

"Product of animals" in 1878-79 doubtless included livestock, last year reported separately. The increase of 44 per cent. in manufactures and 27 per cent in coal are especially noticeable. The Erie showed a considerable decrease in coal traffic.

The earnings of the road were:

	1879-80.	1878-79.	Inc. or Dec.	P. c.
Earnings:				
Passenger.....	\$6,011,150.51	\$5,953,101.94	I. \$58,048.57	1.0
Freight.....	22,180,865.94	18,270,250.38	I. 3,910,615.56	21.5
Rentals.....	1,356,676.70	1,309,889.45	I. 46,787.25	3.6
Mails.....	511,447.82	404,447.78	I. 107,000.04	26.5
Car service.....	989,739.32	1,023,037.41	D. 33,298.09	3.3
Telegraph.....	6,633.30	6,730.43	D. 97.13	1.3
Interest.....	355,042.78	382,444.23	D. 27,401.45	7.2
Use of road.....	237,748.31	227,427.37	I. 10,320.94	4.5
Old materials.....	439,333.81	829,264.61	I. 78,234.94	9.4
Other fees.....	498,165.74			
Total.....	\$33,175,913.23	\$28,306,583.00	I. \$4,770,329.63	16.8
Working expenses.....	17,849,894.38	16,123,072.83	I. 1,726,821.55	10.7
Net earnings.....	\$15,326,018.85	\$12,273,510.77	I. \$3,052,508.08	24.8

The disposition of the net earnings was as follows:

	1879-80.	1878-79.	Inc. or Dec.	P. c.
Interest.....	\$2,822,879.22	\$2,740,761.14	I. \$82,118.08	3.0
Rentals.....	1,922,279.28	1,929,293.67	D. 7,014.39	0.4
Dividends.....	7,141,512.96	7,139,528.00	I. 1,984.96	0.03
State tax on earnings.....	11,640.84			
Total.....	\$11,898,312.29	\$11,818,582.81	I. \$79,729.48	0.7
Surplus.....	3,427,706.56			
Total.....	\$15,326,018.85	\$11,818,582.81	I. \$3,507,436.04	29.7

The rentals in detail the last year were:

For New York & Harlem R. R.....	\$1,540,839.28
For Niagara Bridge & Canandaigua R. R.....	60,000.00
For Spuyten Duyvil & Port Morris R. R.....	79,120.00
For Troy & Greenbush R. R.....	10,250.00
For Dunkirk, Allegheny Valley & Pittsburgh R. R..	223,070.00



Published Every Friday.

CONDUCTED BY

B. WRIGHT DUNNING AND M. N. FORNEY.

CONTENTS.

ILLUSTRATIONS:	Page.	GENERAL RAILROAD NEWS: Page.
Screw Lever Dump Car...	695	Meetings and Announcements.....
EDITORIALS:		Elections and Appointments.....
The Year 1880.....	698	Personal.....
Passenger Locomotives.....	699	Traffic and Earnings.....
Recent Decisions throughout the States.....	700	The Scrap Heap.....
Railroads in Mexico.....	701	Old and New Roads.....
The New York Central & Hudson River R.R.	701	ANNUAL REPORTS:
The Inventor of the Link Motion.....	701	Hannibal & St. Joseph.....
Record of New Railroad Construction.....	702	New York Central & Hudson River.....
EDITORIAL NOTES.....	702	MISCELLANEOUS:
		The Late E. E. Barney.....
		Master Car-Builders' December Meeting.....

EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

THE YEAR 1880.

The year just passed has witnessed further progress in the industrial and commercial prosperity of the country and the full recovery of confidence. The long period of depression and stagnation beginning in September, 1873, it is now perfectly evident has been succeeded by a period of activity and confidence, the beginning of which we have heretofore fixed as about the first of August, 1877. From that time on there has been greater activity and increasing production, though it was not till 1878 that this made much impression on the general public and investors, and not till 1879 that there was a marked return of confidence. In the latter year a succession of three good harvests with, especially in 1879, good prices, had made the farmers—the great producing class of this country—prosperous, had led them to make purchases more freely than for many years, and had stimulated the cultivation of land before unused, in the older as well as in the newer states, had attracted a large immigration, and a movement of population to new country where everything—houses, tools, stock, fences and means of transportation—had to be provided, greatly increasing the demand for lumber, iron and many other commodities, and the work of railroad construction. Almost every great industry in the country, except the production and transportation of anthracite coal, was flourishing excellently a year ago, and the opinion was general that the country had entered upon a period of prosperity, and that new enterprises might safely be undertaken which would depend upon supplying an increasing demand in the future. Up to that time men felt as if things were about as likely to grow worse as to grow better, and consequently they were loth to invest in anything, lest it might be worth less after a little time. But in 1879 immense purchases were made of properties (especially railroads) on the theory that they would soon improve in value.

The progress that has been made during 1880 has been immense in confidence, in immigration and in

railroad construction, great in many branches of manufacturing industry, considerable in the extension of the area of land under cultivation, but quite moderate in agricultural production, the great growth in which in the three previous years was the chief cause of our present prosperity. Crops were not small in 1880; on the contrary, they were decidedly large, probably, taking everything together, the largest we have ever had; but they did not increase as they had in the years immediately previous, nor in proportion to the area cultivated. The fact is, that the crops of 1880 have to be compared with the extraordinary ones of 1879, and not every year can be the best. But 1880 was the fourth year that the harvests have been above the average in yield per acre, so there is nothing to complain of. Still, in forecasting the future we should bear in mind that the wheat crop of 1880 was but little larger than that of 1879 (from a much greater area); the corn crop is estimated by the Agricultural Department to be no greater; the cotton crop, promising as never before until just before it matured, has suffered so from insects, etc., in a few weeks before maturing, and from a very unfavorable picking season, that it now appears doubtful whether the crop will be much if any larger than that of 1879. The latter, it is true, was the largest ever produced, but there was a large increase in acreage in 1880, and we have been accustomed to, and have counted upon recently, a yearly increase in this important crop. The "hog crop," which supplies one of our most important exports, will probably turn out to have increased as much as usual—there was little or no increase in it in 1879.

Further, the prices of agricultural products and most articles that we export are lower than at the close of last year—of wheat, now our chief export, very much lower—and this makes a very great difference in the income of the producers and their ability and disposition to purchase supplies, and has some effect on the general tendency to increase the area cultivated. Some of the differences in prices at New York at the end of the years may be seen below:

	1880.	1879.	Inc. or Dec.
No 2 red winter wheat per bush.....	\$1.16	\$1.60	Dec. 27.5
Steamer mixed corn per bush.....	.53½	.63½	Dec. 10.1
Bacon (long clear) per pound.....	.07½	.07½	Dec. 1.8
Cotton (low middling) per pound.....	.11 9-16	.12½	Dec. 7.5
Petroleum, crude, per bbl. (at Oil City).....	.61¼	1.12	Dec. 18.5
Petroleum, refined, at New York, per gallon.....	.09¼	.08¾	Inc. 16.4

In all these products, therefore, the original producer is receiving a much lower price than he did a year ago, and the difference on grains applied to the exports of 1880 would have amounted probably to \$100,000,000, and, applied to the total sales of the farmers, it would amount to more than twice that sum. The reductions make a very great difference in the profits of the producers, as the cost of production of farm produce varies but little, except as affected by the yield per acre.

But if the country no longer has the stimulus of exceptionally large profits by the largest class of its producers, it no longer needs it. Ordinary fluctuations and prices do not now greatly affect its career. The tide of immigration is fairly turned, and it will not be stopped by any such accident; public confidence is restored, and men undertake enterprises which look to the future and the average results of a series of years, and not merely to the next year. And a very considerable proportion of the community is engaged in providing instruments for producing wealth, which are not expected to yield immediate returns. As the economists say, they are engaged in changing circulating into fixed capital—the most delicate operation in the whole economical art; for too rapid a conversion produces industrial paralysis, and there is always danger lest the capital which it was intended to convert into a productive instrument may really be destroyed by being converted into an unproductive instrument, and, to the nation and the world, if not to its particular owners, be utterly wasted. This was the case with a very considerable proportion of the railroads and iron works, and other manufactories of supplies for railroads, constructed with such eagerness for a few years before 1873, and there is always danger of such premature or entirely unneeded investments of capital in times of great prosperity.

But while the investments are being made, whether they are wise or unwise, we have good times. We then devour the accumulations of previous years. There is great demand for the raw materials and the labor required to construct the railroads and other new works into which capital is converted, and, as in America much of the capital is likely to come directly or indirectly from Europe, at such a time we have spent among us not only our own savings but also part of those of the rest of the world, and do not feel as at

other times the fluctuations in the profits of our own proper industries. We take it that the present great activity in iron and many other industries is due very largely to the great amount of railroad construction going on, and not to our satisfactory production of articles of consumption—things required for daily use, like grain, meat, cotton and petroleum—though there is no doubt that our production of the latter is satisfactory, and sufficient to make the nation prosperous.

Whether we are building too many railroads is an extremely important question which very closely concerns the future of the country, but whether too many or not, there can be no question that the activity in that direction now has a great and favorable immediate effect on the business of the country. The whole subject we hope to consider further when we come to review the construction of the year. But we may safely say that the construction now is at a rate which cannot possibly be kept up for many years without grave disaster. We chronicle this week the construction of 6,139 miles since the 1st of January, and when all the information has been collected we shall find probably that something like 7,000 miles of railroad have been completed during the year, an amount that has only once been exceeded, and which is equivalent to an increase of fully 8 per cent. in the total mileage of the country, while the annual increase in population is not usually more than 2½ per cent., and with the unprecedented immigration of this year can not have been more than 3 per cent. The inevitable result is that there is a smaller number of people to support a mile of railroad. At the beginning of 1880 there were about 566 people in the United States to one mile of railroad; at its end there were only 550. Already for a long time we have had a much larger proportion of railroad to population than any other country; and, though there may be circumstances, which in this country quite frequently occur, where comparatively few people can support a railroad, because its service is of extraordinary value to them, yet this process of reducing the number of persons per mile cannot go on forever. The construction in 1879 was about 4,500 miles. The effect of the additional construction of 2,500 miles over 1879 and of 4,000 miles over 1878, when already this industry had begun to recover, on many important industries, and on the demand for labor has of course been great. All the adult male immigrants of 1880 could not have done the work of railroad construction in this country in the year, to say nothing of the production of the materials used in construction.

The railroads have had plenty of work this year nearly everywhere. The great crops of 1879 and the revival of manufacturing industry kept them busy. At the beginning of the year the traffic had outgrown their capacity to carry it, and in spite of great additions to their equipment they are still liable to be choked at times of great pressure of traffic. The increase in the great national staples of traffic, such as flour, grain, provisions, live stock, cotton and petroleum, has not been so large as in some other years, but it is added to the traffic of 1879, the largest the country had ever known. The latest reports show an increase of nearly 15 per cent. in the receipts of grain at the eight reporting Northwestern markets, but a decrease of 1 per cent. in the Atlantic receipts; an increase of only about 2 per cent. in the receipts of cotton at sea-ports, not much change in provisions, a decrease of 10½ per cent. in petroleum exports, but probably not nearly so great a decrease in the shipments from the wells and refineries (because the home consumption has increased), and a decrease of 10½ per cent. in the production of anthracite coal (which was abnormally large in 1879, and this year has been larger than in any other year). The Chicago lumber shipments, which are of great importance as indicating the prosperity of Northwestern farmers, increased about 8 per cent., but much of the new country now growing fast, namely, that in Dakota and Western Minnesota, does not get its lumber from Chicago, but directly from the pine regions north and east of St. Paul, and the shipments of the Saginaw region, which go chiefly east and south, have increased 13½ per cent.—much more even in quantity than those of Chicago.

The course of these leading staples, then, does not indicate the great growth of traffic that has actually occurred. This has been very largely caused by the large demand of the West for merchandise and the revival of manufacturing industries. The Lake Superior iron ore shipments have been vastly greater than ever before—no less than 38 per cent. more than last year, and about eighty per cent. more than in 1878. There has, doubtless, been an increase some-

what similar (not so great, however,) in the other traffic required by the iron industry—ores, coal, coke, limestone, and product. Mr. Swank, the Secretary of the American Iron and Steel Association, who is best informed on this subject, estimates an increase of nearly one-third in the production of pig-iron and of one-fifth in the production of rails. Most other manufacturing industries have not gained so much, doubtless, but generally they have gained decidedly. The whole country seems to be busy, and all this supplies traffic to the railroads. The reports of the trunk lines give the best key to the general activity of freight traffic, and the New York Central shows an increase of 10 per cent., and the Erie an increase of 9.7 per cent. for the year ending with September.

But there is one source of earnings which has been more productive in 1880 than for years before—the passenger traffic. Passenger traffic on many old roads not only had not increased, but had actually decreased, from 1873 to 1879. In 1880 we have for the first time a general and considerable increase of passenger traffic and earnings, which of itself is striking proof of the improvement in the prosperity of the community.

But the increase in earnings of the railroads has not been due wholly to an increase in traffic. A very considerable amount of the gains of a large proportion of those north of the Ohio and Potomac and east of the Mississippi has been due to an improvement in the rates on through freight—from the simple cessation of war among the railroads over this traffic. For the first year probably in the history of the railroads, certainly for the first time for seven or eight years, the east-bound rates based on the Chicago-New York rate have been regular and substantially maintained—not strictly, but to such an extent that there has been no open “war,” and so that the irregularities have had but a trifling effect on the gross receipts from this traffic. Rates on west-bound freight had already been maintained two years and a half, and for some time very strictly and with excellent results. To the partial application of Mr. Fink’s admirable plan of co-operation a very large part of the gains of several of the more important roads, and some part of the improvement of a large number of other roads, is certainly due. Rates on east-bound freight were higher while navigation was open than the competition of the lake and canal usually permits them to be, but they were lower, on the average, during the fall than they have been for three years before, and are now lower than a year ago, and not likely to be raised this winter.

Expenses as well as traffic and earnings have been greater in 1880 than before. Nearly all the elements of expense are higher labor, fuel, lumber and timber and iron. Iron, however, is not so high at the end as at the beginning of 1880. The advance which began about August, 1879, reached its culmination about February, after which there was a rapid decline till June, and since that time a moderate recovery. The New York prices now and a year ago were quoted as follows:

	1880.	1879.	P. c. of decrease.
No. 1 pig-iron.....	\$25	\$32	21.9
Iron rails.....	46@49	55@60	16.4
Steel rails.....	60@62½	70@72½	14.3

Wages on railroads were very generally advanced last spring, and the roads no longer have the benefit of constantly falling prices which greatly helped them in reducing their expenses from 1873 to 1879. However, expenses have not usually increased in the same proportion as traffic, and so far as reports have been made there has generally been some decrease in the cost per ton or per passenger per mile. Many New England and some other roads show very great increases in the maintenance expenses, but this in most cases is caused either by charging to maintenance expenditures for new construction, or by doing a great deal of repair work in 1880 that would have been done before if earnings had not been light. Further improvement in transportation business has been effected by carrying larger freight-train loads, partly by the increase in powerful locomotives, and more, probably, by the larger west-bound traffic due to the prosperity of the Western farmers. That there is great room for such improvement may be seen from the report of the New York Central & Hudson River Railroad, which we publish to-day, which shows that the shipments from the western termini of the road to New York and Albany were just about *five times as great* as the shipments from New York and Albany to the western termini of the road.

The great feature of the railroad history of the year has been the progress of the concentration of railroads in the hands of powerful companies or associated capitalists. The Wabash, St. Louis & Pacific, the Union Pacific, the Chicago, Milwaukee & St. Paul, and the Louisville & Nashville have taken the lead among com-

panies, and the “Gould interest,” including Messrs. Jay Gould, Russell Sage, Solon Humphreys, Cyrus W. Field, and others (who also have a large interest in the direction of the Wabash and the Union Pacific) among associated capitalists. Most of the railroads that became bankrupt after 1873 have now got out of receivers’ hands, and a very large part of them have been absorbed by stronger companies.

As every one is aware, there has been a large increase in the market price of railroad securities of almost all kinds during the year, partly based on the improved returns, or the improved prospects, real or supposed, of the railroads, and partly on a very different fact—namely, what appears to be a permanent reduction in the ruling rate of interest on money in this country. A few years ago few railroads in this country could borrow money at 6 per cent.; many issued 8 per cent. and some 10 per cent. bonds, and the average for the whole country was probably rather more than less than 7 per cent. Now, several companies have negotiated 4 per cent. bonds, and, though all these (we believe) have been issued at a discount, there are some companies, probably, which could borrow at 4 per cent. United States 4s during the year have risen from 104 to 113½, and other securities, considered perfectly secure, then and now, have risen about in the same proportion, and stocks which maintained good dividends all through the hard times after 1873 have a position something like that of bonds, even where no increase of dividend is expected; like the New York Central, which has gone up from 133 to 150; while those roads which have paid or are expected to pay larger dividends have made astonishing advances, the general assumption seeming to be that the good times we are having now will last forever.

We have noted above that the east-bound through traffic had been much more profitable than before, because for the first time in many years there had been no war over it. Aside from this, the number of railroad wars, or their extent, at least, has probably been less than usual. One between the Illinois Central and the Louisville & Nashville affected passenger traffic chiefly and did not last long. The roads in the “Southwestern Association,” for the first time in their history, we believe, have got through a whole year without fighting over the business the Association takes charge of (freight between Missouri River points and Chicago, St. Louis and Toledo). Some of them have been having a very hot struggle over passenger traffic, however, which is still raging. Passenger traffic generally, however, is in as bad a condition as ever, there being many irregularities, cutting of rates, etc., where there is no open war, and these going on almost all the time and almost everywhere that there is competition for passengers.

The prospects for the new year are good. There is a large traffic to be carried, and promise of large production, agricultural and manufacturing, though how the harvests will turn out, of course, cannot be foreseen. Very likely it will not be possible to maintain through rates from the West to the East at as high a figure as this year, after navigation opens, but with the present activity in travel, local traffic and west-bound freight, this will not be likely to reduce earnings. There is promise of very great activity in railroad construction, which, while it lasts, contributes largely to traffic as well as to the demand for labor and materials. The roads are pretty sure to have plenty of work to do, and, if they co-operate properly, to get reasonably remunerative rates for it; that they will answer all the exaggerated expectations of some of the owners of railroad shares, and many of the speculators in them, is hardly to be hoped; it is imaginable that they might do so well in one year that their future would be permanently and irreparably injured.

PASSENGER LOCOMOTIVES.

Considering the fact that since the earliest times mankind has engaged in contests of speed, and that foot, horse and boat races have been the most popular diversions among both savage and civilized people ever since the world has left any history of itself, it is not surprising that there should be a fascination about fast locomotives in modern times. It is said that in England rich men amuse themselves by running locomotives, and it is among the possibilities that one of the diversions of the future rich young men of our land may be the owning and running of fast locomotives. Certainly no other game of either ancient or modern times has had so many of the elements which seem to be required to give fascination to it as this would have. Neither chariot racing, yacht sailing, polo or bicycling requires nearly so much knowledge, skill or courage

as must be exercised in the construction and operation of a powerful locomotive. It is true that it needs very little exercise of physical strength, but in its place there is room for employing the profoundest knowledge of mechanics, chemistry, thermodynamics and the highest order of constructive skill and ingenuity. Whatever there is of excitement in moving at a high rate of speed, a locomotive possesses in two or three-fold greater proportion than any other form of racing.

The element of danger also is not absent, and, with all, the operation of such a machine requires alertness and sound judgment, and a steady eye and hand. It is not surprising then that to the youth of the present day, and the grown men, too, a locomotive has a charm that no other machine has.

Of late years the demands of traffic have directed attention afresh to this machine, and have presented some new and rather difficult problems for solution. It will probably be a fair statement of what was generally the maximum work done by passenger engines, say ten or fifteen years ago, if the train of these days is taken at ten cars and the average speed at 30 miles per hour, and the highest at about 50. Of course it is true that larger trains were hauled and faster time made on some occasions, but there were few roads which regularly ran more than ten cars or averaged more than thirty miles per hour. The time from New York to Philadelphia, 90 miles, was made in three hours. Now it is done in two, and many trains on this and other lines will average 15 cars. For our fastest travel then we may take the average speed at 45 miles per hour, and the maximum at over 60. In other words the loads and the speeds are 50 per cent. greater now than they were ten or fifteen years ago. The standard locomotive then, which was used for this kind of service, weighed about 30 tons (60,000 lbs.) and had driving-wheels five feet in diameter which carried 40,000 lbs. of the weight, 16x24 in. cylinders, grates 60 in. long x 35 in. wide, and about 900 feet of heating surface.

The weight of a train of 10 cars may be taken at 500,000 lbs., or 250 tons, and of 15 cars at 750,000 lbs., or 375 tons.

The resistance per ton of a train at a speed of 45 miles per hour on a level road is somewhat more than 50 per cent. greater than at 30 miles per hour, but the proportion diminishes as the grade increases, the reason being that the resistance due to the ascent alone is uniform for all speeds. This is shown by the following figures, which give the resistance for the two rates of speed and for different grades:

Rise of grade in feet per mile.	Resistance per ton.		Percentage of increase.
	30 miles per hour.	45 miles per hour.	
0 Level.	11.2	17.8	.59
25	20.6	27.2	.32
50	30.1	36.7	.22
100	49.0	56.6	.155

It will be seen then that it will be impossible to express definitely in a fixed percentage the increase of work which is due to the acceleration of speed, because this will vary with the grades and alignment of road. But as exact precision is not aimed at, we may take one-third as the increase due to the speed. As the load is 50 per cent. greater the actual work done in hauling 15 cars a given distance at 45 miles per hour is thus double that which is exerted with 10 cars at 30 miles per hour. But the element of time must also be taken into consideration. To illustrate this, let it be assumed that the average resistance for the train at 30 miles per hour is 21 lbs. and the one at 45 miles is 28 lbs. Then the amount of work in mile-pounds done in one hour would be represented by

$$250 \times 21 \times 30 = 157,500$$

and

$$375 \times 28 \times 45 = 472,500.$$

That is, the work done in any given time is three times as great with the heavy train and fast time as it is with the light train and comparatively slow time. This means that the boiler of the engine which draws the fast train must generate *three times as much steam* per hour as that of the engine for the slower and lighter train. This begins to make the reason apparent why it is so difficult to “make time” with trains of the weight and at the speed named. To make three times as much steam there should be three times as much heating surface and grate area. Let us see what this implies. The boilers of the engines used ten or fifteen years ago, for the smaller trains of that date, had 900 square feet of heating surface and about 15 square feet of grate area. The boiler for the trains which are now run should, according to the figures given, therefore, have 2,700 square feet of heating surface and 45 square feet of grate area. To get this amount of heating surface the sectional area of the barrel of the boiler should be increased in somewhat the like proportion. The en-

gines of the smaller size usually had boilers about 46 in. in diameter. To have three times the transverse sectional area, then, the diameter of the barrel of the boiler would need to be 70 $\frac{1}{2}$ in. Inasmuch as the present form of construction in use in this country does not admit of any greater width of fire-box, the increase would have to be made in the length alone. To get the required area of grate it would be necessary to make the latter 18 feet long to be in proportion to the work to be done. Obviously these proportions are impracticable on the present gauge of railroads.

Probably experienced locomotive managers and designers will say that there must be some mistake about these figures, because it is well known that engines with less than half the grate and heating surface have taken and do take, trains of the weight and at the speed for which this enormous boiler capacity has been calculated. The latter is freely admitted. The calculation has been made, though, for an engine which would do the larger amount of work with the same ease that the lighter engines did the work which has in this article been assigned to them. The fact is, and was, that the lighter engines in emergencies would haul heavier trains and at somewhat greater speeds than these which have here been assigned to them. They did this, though, with more or less difficulty, and could not always be depended upon to make either steam or time. The same is true of the engines which are employed now for the fast and heavy trains, and the object of this article is to show why this is so, and to indicate the reason for the difficulty which it must be admitted nearly all locomotive superintendents experience in doing this kind of work satisfactorily.

Before suggesting what plans to adopt in designing engines for this kind of work there are some other questions involved in the construction of locomotives for the kind of service described which will be considered.

In the older engines the stroke of the pistons was given at 2 ft. and the diameter of wheels at 5 ft. The former was therefore two-fifths or 40 per cent. of the latter. To increase the speed of the train 50 per cent. and yet maintain that of the piston at the same rate, one of two things are required: either the diameter of the wheels must be made larger, or the stroke of the piston shorter. That is, if the wheels were made 7 $\frac{1}{2}$ ft. in diameter, or the stroke 16 in., the speed of the pistons would be the same at 45 miles per hour that they were before at 30, and the latter would be 26 $\frac{2}{3}$ per cent. of the former. There are some objections, though, to adopting either plan. Wheels as large as 7 $\frac{1}{2}$ feet are unwieldy, and to maintain the same capacity of the cylinders with a 16-in. stroke that they had with 24 in., the diameter would have to be made 19 $\frac{1}{2}$ in. It was shown, though, that double the tractive force must be exerted to draw a train 50 per cent. heavier and 50 per cent. faster than the one first specified. Twice as much adhesion is therefore required and twice the cylinder capacity. The latter is, of course, relative to the size of the wheels. If we divide the contents of the spaces swept through by the pistons by the circumference of the wheels, it will give us a measure of the cylinder capacity. The contents of a cylinder 16 \times 24 in. is 4,825 $\frac{1}{2}$ cubic inches, and for the double stroke of the two pistons would be 19,302 cubic inches. This divided by the circumference of a 5-ft. wheel will give 100 nearly, or 5 lbs. for each ton of weight on the driving-wheels. For our larger engine, then, the cylinders should have 200 cubic inches of cylinder capacity for each inch in circumference of the wheels. If we maintain the same proportions that have already been suggested, that is 7 $\frac{1}{2}$ -ft. wheel and 24-in. stroke, then to get the cylinder capacity required the diameter of the latter must be 27 $\frac{3}{4}$ in.

Now let us sum up: The ideal locomotive, to fulfill the demands of the present day, as they have been specified, and do it with the same ease that the lighter and slower service was performed fifteen or twenty years ago, should have 2,700 square feet of heating surface, 45 square feet of grate area, an adhesive load on the driving-wheels of 80,000 lbs., a stroke equal to 26 $\frac{2}{3}$ per cent. of the diameter of the wheel, and a cylinder capacity of 200 cubic inches for each inch in circumference of the wheel. Of course every experienced locomotive designer will say at a glance these requirements are impossible of attainment. Let us see, then, which of them are, and which are not, absolutely necessary.

In the first place, hardly any railroad manager or engineer of permanent way would now permit locomotives to run on his line with more than 15,000 lbs. weight on a wheel. We are therefore, with four-wheeled coupled engines, limited to 60,000 lbs. of adhesive weight. What loads may be carried per wheel in the future we will not now undertake to predict.

All that is said is that the above figures are the present limit in this direction. Taking the weight of such an engine and tender at 75 tons, and that of the train at 375, we have a total load of 450 tons. Taking the maximum adhesion at one-third the weight on the driving-wheels, it will be seen that the capacity of the engine with such a train is limited, on grades of 70 ft. per mile, to the rate of 45 miles per hour, or on grades of 100 ft. to 10 miles per hour.

The fact must be kept in mind, though, that to draw 50 per cent. more load at 50 per cent. higher speed, it is absolutely essential to generate approximately three times as much steam. As was suggested before, this would indicate that three times the heating surface would be required. But the quantity of steam generated is not in proportion to the heating surface, although the economy is. The quantity depends largely on the amount of fuel burned, and this in turn on the size of the grate and fire-box. If, then, these are large enough we may be able to generate enough steam, although it might be done wastefully. What would be needed in addition to grate area would be a large sectional tube area to carry off the products of combustion, but the proportion which these should bear to each other has never been established with any definiteness. All that will be said now is that by enlarging the grate and the diameter of the tubes the steam-generating capacity of the boiler will be increased in somewhat like proportion.

If the weight on the driving-wheels is only 50 per cent. greater than it was before, there is no occasion to increase the capacity of the cylinders in a greater proportion, so that we will need 150 cubic inches of cylinder for each inch of circumference of the wheels.

It was shown that it was desirable to make the stroke of the pistons only 26 $\frac{2}{3}$ per cent. of the diameter of the wheels. There is, though, nothing absolute in this, and what should be done is to approximate to it as closely as possible. It will be found by calculation that so long as the same proportions of cylinder to the wheel circumference, and of stroke to diameter of wheel, are maintained, the diameter of the cylinder will be the same for all sizes of wheels. With the figures given this would be 23 $\frac{1}{2}$ in. If, then, this proportion of stroke to diameter is maintained, we must use 7 $\frac{1}{2}$ -ft. wheels and 24-in. stroke, or else make the diameter of the cylinder larger than its stroke, to which there is no apparent objection, although the practice would probably be very generally condemned. There is no reason for believing, though, that the speed at which the old engines, with two-foot stroke and five-foot wheels, ran was limited by that of their pistons. The fact that with comparatively light loads they would make from 45 to 55 miles per hour showed this. The difficulty of running faster, though, even with light loads, showed that the limit of piston speed had been very nearly reached within those limits. To run at the rate of 60 miles and retain the same stroke and piston speed that the old engine had when running 50 miles, we would require wheels one-fifth larger, or 6 ft. in diameter, and the stroke would then be 33 $\frac{1}{3}$ per cent. of the diameter of the wheel. To allow some margin for running somewhat faster than 60 miles per hour, let us take a mean between the percentage of stroke to diameter, 26 $\frac{2}{3}$, which was first calculated, and 33 $\frac{1}{3}$, given above; for the proportion of stroke to diameter of wheel for the fast engines. This mean will be 30 per cent.

Now, as already explained, with a given proportion of stroke to wheel and 150 cubic inches of cylinder per inch of circumference of wheel, the diameter of cylinders will always be the same for any size of wheel. In this case it will be 23 $\frac{1}{2}$ in. As great precision is not required in such dimensions the size may be taken in even figures, or 22 in. This being established, the stroke must be determined, from which the diameter of driving-wheels can be deduced. If the stroke is 20 in. the wheels should be 66 $\frac{2}{3}$ diameter; if 21, 70 in.; if 22, 76 $\frac{2}{3}$; if 24, 80 in., and so on.

There is not space nor time now to explain why so much more adhesion is required than is ordinarily supposed for running fast trains. Briefly, though, it may be said, that with much adhesion the speed can be accelerated much more rapidly than if there is little, but of the enormous amount of power required to get up speed probably few have any idea unless they have made some calculations of it. The old engines, though, were used in service in which frequent stops were required, for which great adhesion was needed. For the service for which our hypothetical engine is intended comparatively few stops will be made. A large proportion of adhesion is, therefore, not so essential as it was in the old engines, although it would be desirable if we could have it. The only method left open to us is to increase the speed slightly between stops so as to make up the time lost in starting.

To sum up, then, what is needed for a fast passenger engine with trains of 15 or 16 cars is:

First, a fire-box about three times as large as those used on the old 16 \times 24 in. cylinder engines.

Second, as large a barrel of boiler as possible and tubes somewhat larger in diameter than usual.

Third, as much weight in each of four driving-wheels as will be permitted on the rails.

Fourth, 5 cubic inches of cylinder capacity per inch of circumference of driving-wheels per ton (of 2,000 lbs.) on these wheels.

Fifth, the stroke of pistons should be 30 per cent. of the wheels.

Next week we expect to give engravings of an engine which fulfills most of these conditions.

RECENT DECISIONS THROUGHOUT THE STATES.

By a series of carefully prepared articles, during 1880, the *Railroad Gazette* has kept its readers well informed on the new legislation of the states affecting railroads, and on the general course of decisions on leading topics of railroad law. The volumes which reach us at the close of the year contain a number of cases which could not be included in our former issues, but are too noteworthy to be passed in silence.

Corporate Organization.—Questions of interest have arisen where a new company by consolidation, purchase, or the like, has acquired, in general terms, all the privileges, rights, etc., of an old one. In Illinois it was adjudged in such a case that the new company acquired whatever claim the old one possessed to enforce a donation of town bonds, which, before the consolidation, had been voted to the old corporation. The fact that a new company had been created did not extinguish the obligation of the town; nor was any specific transfer of the donation, from the old company to the new, needed. And the United States Circuit Court in Tennessee has decided that an exemption from taxation is embraced in a general transfer, by the railroad company to which it was granted, of its "rights, powers and privileges," to a successor. There are familiar laws in many states giving priority of payment of wages to employes, laborers, or servants. A federal court has decided that the secretary of a railroad company is not within such a privilege. He is an officer, not an employe. The intention of such statutes is to protect subordinate operatives who have no share in the control.

Railroad Bonds have given rise to several suits. Most of them involve only familiar principles; but a novel decision was made by the Federal Circuit Court in New York against the Canada Southern Railway Company. That corporation issued, in Canada, its bonds payable in the city of New York; and was afterwards authorized by an act of the Canadian Parliament to issue new bonds as substitutes for the old ones, bearing a lower rate of interest. It seems that Canada has no organic law, such as prevails over our state legislatures, forbidding laws which impair the obligation of contracts; therefore when the company was sued in the circuit court, counsel contended that the act of Parliament was unobjectionable, and must be obeyed. But the circuit judge said he was not bound by a Canada law at all, except on the ground of "comity." As matter of courtesy our courts should respect Canadian laws, when invoked upon Canadian contracts; but this courtesy cannot be carried so far as to allow the Parliament to deprive our own citizens, holding bonds, of their rights, by passing laws which would not be within the power of our legislatures. The American bond-holders were held entitled to interest at the original rate.

Construction.—Law suits arising upon the acquisition of lands and building the road have arisen. One company, as an inducement to a land-owner to sell at a low price, entered into an engagement not to build any depot in the city, except at a designated spot; the court pronounced this stipulation void, as contrary to public policy. The whole community has an interest that directors shall keep themselves free to locate depots in the most convenient places. Another company assumed to grant to a single telegraph company the sole right to run a wire along its roadway; the court said that this was beyond the railroad's power. A horse, crossing the track at a street crossing, caught his foot in the space between the rail and a plank nailed alongside it; the hoof was wrenched off and the horse ruined. The court said that the company was to blame for allowing so much space between the rail and the plank as would catch a horse's hoof, and must pay damages.

Traffic.—The ordinary carrying business has not given rise to many recent discussions. In one instance there was occasion to say that railroad companies are not supposed to be under obligation for carriage of goods beyond their own roads, unless by an explicit

agreement to forward over connecting lines; and ordinary local freight agents are not understood to have authority for making such agreements. In another instance a traveling salesman's sample trunk of merchandise was lost from the baggage car; but his lawsuit for the value failed because a sample-trunk is not proper "baggage." A nursery-man sent eight boxes of trees by railroad, and they were delayed on the way; and the company said, by way of excuse, that the car was broken by unavoidable accident on the journey, and the delay was necessary for repairs. The judges pronounced this excuse insufficient; a carrier cannot escape liability for loss caused by delay by showing that it was caused by the ordinary accidents of railroad traffic; unless he is protected by an express agreement, he is bound to deliver within a reasonable time according to the usual course. By a decision last summer, which attracted wide attention, the Southern roads were adjudged in duty bound to carry the goods of the express companies. To evade this judgment one of the roads said it would only carry the safes and chests of the express on condition of being allowed to inspect the contents at pleasure, and collecting freight on each parcel. The cause was lately brought before the court a second time; and a decision rendered that the railroad company could not claim any such privileges; the chests must be carried as they were packed and locked by the express.

Injuries to Passengers.—Occasions have arisen for renewed statement of the limits of a company's liability for a passenger's safety. On Decoration Day, 1877, an unusual number of persons claimed transportation between Chicago and the neighboring cemeteries at Rose Hill and at Calvary. The previous year about three thousand persons went, and, in 1877, the officers of the company made liberal arrangements to accommodate fully as many; but about six thousand came, and the cars were greatly crowded. Seats, aisles and platforms were filled; and one passenger, who was only able to get a footing on the step of a platform, was thrown off by a sudden violent jerk of the train, and badly hurt. He sued for damages, but lost his case. The court said that the company was not in fault. It is not the law that railroads are bound under all circumstances to furnish seats enough for all who may apply for transportation. Unforeseen emergencies may arise where the performance of such duty would involve impossibilities. Crowds of whom the company has had no notice, or whose numbers exceed all reasonable anticipation, may present themselves; and the duty of being prepared on such occasions to furnish the means of accommodating all who may wish to ride would involve such a constant accumulation of cars, etc., at every point where any extraordinary number of people might come as passengers as would, in all probability, make the business of carrying passengers too expensive to be profitable. It is the duty of these companies to furnish suitable sitting accommodations for its ordinary number of passengers, or for an extraordinary number on reasonable notice; but where passengers apply for transportation in extraordinary and unexpected numbers, the company should be held only to the exercise of such reasonable diligence as may be consistent with the circumstances of each case. Carriers of passengers are not liable like common carriers of merchandise; these are liable as insurers, those only for due care; for a very high degree of care to be sure; but unless there is lack of diligence, there is no liability for injuries to passengers. A company is justified in refusing to carry more than its cars will accommodate, but it is not bound to do so; taking on a crowd is not of itself negligence. A train was wrecked, and a passenger hurt, through the washing away of the road-bed, unknown to the management, by a violent and unprecedented storm; the court said that if the company had discharged the duty of skillful building and faithful inspection it was not liable; a company is not an insurer of its passengers' safety.

In two instances where conductors have expelled passengers from the cars, the aggrieved person has complained; in one because he was put off at a lone spot between stations; in the other because, after the train had been stopped, he, rather than be put off, proffered the fare in dispute. In the first case the court said that, even though the statute allowed a person to be put off "at a station," this did not necessarily mean that he might not be put off, under proper circumstances, elsewhere. In the other case the very reasonable decision was made that to allow passengers to cause trains to be stopped, and then claim to settle the dispute as to fare by paying the amount claimed, would tend to inconvenient delay; the fare must be paid when it is first demanded. A thoroughbred short-horn cow is not precisely a "passenger," but we must mention what happened to one on a Western road. She was nearly eight months with calf; but

the owner, when he delivered her to the freight agent for transportation, said nothing about her peculiar condition. The car was allowed to run without brakes on a down grade, by which she was jarred so severely as to lose her calf. The court said that the law of such cases is, if the mismanagement of the train is the prime cause of the injury, the company is liable; a shipper is not bound to disclose such circumstances about live stock, where no questions are asked; but if the peculiar condition of the animal is the prime cause, the owner must bear the loss.

Injuries to Employes.—Two decisions illustrate somewhat novel phases of this doctrine. In one, in New York, a driller whose duties included making up trains and moving cars in the yard, and who was hired by and served under the direction of the yard-master, was run over and killed by a train backing without signals, the fatality resulting partly from a broken bumper, partly from the yard-master's improper directions. In the other case, which occurred in Kansas, the circumstances were similar; a brakeman was injured while coupling cars where the bumpers were of inferior construction, and the coupling-pin furnished was old and bent, while also the yard-master was injudicious in the general arrangements and directions for making up the train. The decisions were, in substance, that the doctrine restricting an employer's liability does not apply to such cases. The yard-master is not a fellow-servant engaged in the same general business with the coupling-man; but a representative of the company. A minor agent, though amenable to instructions from the general direction, may yet be a superior officer as respects workmen hired by him and serving under his direction and control. Where such is the case the company is liable both because it is responsible to the workmen for the directions which it is in law considered to have given through its superintending agent, here, the yard master, and because it has neglected the duty of maintaining the apparatus furnished for the work in safe and suitable condition. The circumstance that the yard-master was negligent has no such effect as negligence of the workman himself would have, to bar him from a remedy against the company.

Railroads in Mexico.

The Mexican Railway Company, which owns the railroad from Vera Cruz to the city of Mexico, 293 miles, with a branch 71 miles to Jalapa, has had the following gross earnings for the first half of the year, on its main line:

1878.	1879.	1880.
\$1,527,400	\$1,593,300	\$1,793,185

This year these earnings were at the rate of \$6,140 per mile, which, as it is the only railroad of importance in the country and connects the plateau, where the populous part of the country is, with the sea, may be looked upon as light earnings. The earnings of the Jalapa Branch, which, with 9½ miles of the main line is worked as a separate line, have been for the same time:

1878.	1879.	1880.
\$39,255	\$44,820	\$52,355

The earnings this year were at the rate of \$740 per mile of road, which is a very light rate indeed. Taking the whole 354½ miles of road the earnings have been:

1878.	1879.	1880.
Total.....\$1,566,655	\$1,644,120	\$1,851,540
Per mile.....4,422	4,613	5,225

These figures, it must be remembered, are for the half-year, not for the year.

The working expenses of the main line this year were 42.19 per cent. of the receipts, and the net earnings were \$1,040,185, or at the rate of \$3,550 per mile of road. On the Jalapa Branch the expenses were 89 per cent. of the receipts, and amounted to but \$5,950, or \$84 per mile. Thus on the whole system the net earnings were \$1,046,135, or \$2,955 per mile—say \$6,000 per mile yearly.

These latter would be good profits for a railroad of average cost; but the Mexican Railway is a very costly one, having been greatly delayed and interfered with during its construction, while the engineering difficulties were very great. The company was aided by the state, and during the half-year in question it received \$292,040 on account of its subvention.

As to the bearing the experience of this company may have on new railroad enterprises in Mexico, it may be remarked that most of the projected new railroads need not be costly. They are for the most part on the table land which the Mexican Railway has already connected with the sea; any line from the city of Mexico to the Pacific will have to descend from the plateau, as the Mexican Railway had to ascend to it from the other side, though probably the descent would not be so costly.

The Mexican Railway, however, is in a position to command more traffic than any other line in Mexico, as it is the only line which gives the country an outlet to the sea, is short, and has at its upper end not only the capital, a large city, but a country full of large towns, which depend upon it now; and its position will not be weakened, but will be immensely strengthened, by the construction of most of the new projected lines. It must be remembered that there is not now any difficulty in reaching any markets of the world from the city of Mexico. It is nearer to the sea than Buffalo or Pittsburgh, and the route from Vera Cruz is quite direct and short to the Atlantic and Gulf ports of the United States, and to Europe. That there has not been more commerce

hitherto has been due largely to the fact that Mexico does not produce much for export, partly, doubtless, to the lack of means of transportation in the fertile interior around the city of Mexico, partly to the badness of the Vera Cruz harbor and the high railroad rates. But to suppose that Mexico is waiting for a railroad to the Rio Grande in order to export its products is as reasonable as to suppose that the traffic concentrating at Buffalo would wait for a railroad to Savannah or Pensacola, when there was one already in operation to New York. From the City of Mexico to El Paso is further than from Buffalo to Pensacola, and El Paso is thousands of miles from any Atlantic port, and to Gulf ports the distance is much nearer by sea than by rail.

The proposed railroads, there is every reason to believe, will have to depend much more on domestic interchanges than on foreign commerce, as is the case with nearly all other railroads elsewhere in the world. But there is good reason to believe that at least some of the projected lines will find a good support from the domestic commerce, and especially the Mexican Central, whose line is through a thickly peopled country, and connects directly with the railroad between Mexico and Vera Cruz. Roads further north will have to get their living from a very thinly peopled country; on the other hand, they will have a vast extent of it to draw traffic from. One of the sources of traffic most counted on in Northern Mexico is the mines. As to what these will supply no one can judge without a very thorough study of the circumstances of the several mining properties. But experience in this country has shown that a very small mining population can support a railroad without supplying any great amount of traffic; and, in Mexico, where at present machinery and supplies have to be hauled in wagons many hundreds of miles, the industry will certainly be able to pay as high rates as any charged in this country, and in all probability will extend largely when the enormous cost of cartage is replaced by the highest rail rates even. From what we can learn, however, the American projectors of Mexican railroads have made altogether insufficient study of the sources of traffic and even of the cost of their proposed roads, no surveys of any kind having been made in several instances, and almost no definite knowledge having been obtained as to the population and production of the territory through which the lines are projected.

The New York Central & Hudson River Report.

We can do little more this week than call attention to the full report of this company to the State Engineer and Surveyor which we publish on another page, though by no means in the form in which it is rendered, we having altered the arrangement to answer the form generally followed in presenting reports in this paper, and added a great number of comparisons and deductions which we believe to be of value and interest.

This report is notable as the first which has given a balance sheet (which the new state form provides for), and a statement of the unfunded debt. It has, too, some very important information concerning the amount of through traffic which has never been given before. It appears that the amount of through freight traffic between New York and Buffalo (or Suspension Bridge) was just about the same last year as that between Buffalo and Albany, and that both together formed just about three-fifths of the total freight traffic (tonnage mileage) of the company.

In comparing the earnings and expenses of this road, either per mile of road or per ton and passenger per mile, it should be borne in mind that there are some peculiarities in its reports. It credits the gross receipts from car service (the last year amounting to nearly a million dollars), to gross earnings, and charges the expenditures on that account (last year \$1,658,208) to expenses, and it also credits receipts from old materials (last year \$439,334) as earnings. By the ordinary practice only the difference between the amounts received and those expended for car service would appear at all, and if there was an excess of payments, as there was on the New York Central, it only would be charged to freight expenses. And in the case of old materials, the repairs would generally be charged with their cost less the receipts from the materials replaced. The effect of this is to make the working expenses of the New York Central larger, and the expense per unit of traffic, especially per ton per mile, larger than if the accounts were kept as is usual on other roads with which it is likely to be compared, for while expenditures for car-hire are charged to freight expenses, the receipts from that source are not credited to freight earnings. This item alone is at the rate of 0.0339 cent per ton per mile, and allowing for it will bring down the average expense per ton per mile from 0.541 to 0.502 cent, which is the better figure to use in all comparisons with other roads.

We are unable to discuss this interesting report further this week. We have already, in presenting the earnings and expenses for the year and comparing them with those of the previous years, spoken of the extraordinarily strong position which this company occupies and which the results of last year's business have strengthened more than ever; but there are other features in the report which will repay further study, which we hope to give hereafter.

The Inventor of the Link-Motion.

The following letter from Mr. James B. Francis, the veteran hydraulic engineer, and President of the American Society of Civil Engineers, has been sent to us for publication by Mr. John B. Winslow, late Superintendent of the Boston & Lowell Railroad. Mr. Francis says:

"In reply to your inquiry as to the invention of the 'link-motion,' I have to say that during the visit of Sir John

Hawshaw, the eminent English engineer, to Lowell in September last, he said to me: "Stephenson told me that the link-motion was the invention of a pattern-maker in our shop."

"The Stephenson referred to was undoubtedly Robert Stephenson, who had an interest in the locomotive works at New Castle, established by his father and others."

In the *Railroad Gazette* of Feb. 3, 1872, page 58, a full account and illustrations of the invention were published. In its original and imperfect form the link-motion was invented by a Mr. Williams, "a young gentleman apprentice" in Stephenson's works. The form of link-motion, though, which was adopted by Stephenson, and is still used, was invented in 1842 by Mr. William Howe, a workman in the same establishment. Mr. Howe made a pencil sketch and a rough wooden model of his link-motion, both of which can be seen at the South Kensington Museum. Mr. Howe showed this to the manager of the works, who at once saw its value. He sent this model to Mr. Robert Stephenson, then in London, who also approved of it immediately. It was at once applied to one of two locomotives for the North Midland Railway. This engine commenced running Sept. 10, 1842. Mr. Robert Stephenson acknowledged Mr. Howe as the inventor of the link-motion, and made him a present of twenty guineas for his invention, and in 1846 appointed him engineer of the Stephenson collieries and iron-works at Clay-Cross, Chesterfield.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Detroit, Mackinac & Marquette.—Track on the eastern end has been extended north by west 20 miles.

Chicago & Indianapolis Air Line.—The first track is laid from Dyer, Ind., southeast to Rensselaer, 15 miles.

Detroit, Butler & St. Louis.—Extended west by south to Adrian, Mich., 37 miles.

Port Huron & Northwestern.—The Marlette Branch is completed from Balmer's, Mich., to Marlette, 33 miles. Gauge, 3 feet.

Lake Erie & Western.—Extended from Fremont, O., east by north to Sandusky, 24 miles.

Somerset & Cambria.—Completed from Somerset, Pa., north by east to Johnstown, 37 miles.

East Texas.—Track laid from Beaumont, Tex., north to Pine Island Bayou, 6 miles.

This is a total of 172 miles, making 6,139 miles reported thus far this year, against 3,801 miles a year ago. Fuller information will doubtless increase the total for this year.

THE STATEMENT OF AVERAGE FREIGHT TRAIN LOADS given in discussing "Erie Traffic and Expenses" in these columns was incorrect for some roads, because the freight-train mileage used in computing the average train-load included switching mileage. The figures were published as "freight-train mileage," but we have learned since that the switching mileage was included. The Pittsburgh, Fort Wayne & Chicago was one of these roads, and the Pittsburgh, Cincinnati & St. Louis doubtless was another. As to the Fort Wayne we find that its average train-load in 1879 was 164.9 tons, including company freight, and 155.2 of paying freight, instead of 190.1, as we reported. As on so many other roads, there has been a rapid increase in the average load on the Fort Wayne during the past few years—amounting to nearly 50 per cent. from 1873 to 1879. As this is a subject of general interest and importance, we give below the average freight-train loads on several lines for six successive years, commercial freight alone being included, as in most cases company's freight is not reported:

	1874.	1875.	1876.	1877.	1878.	1879.
P. Ft. W. & Chicago.....	109.7	117.2	123.7	121.5	149.4	155.2
Phila. & Erie.....	151.0	157.7	160.0	188.0	193.5	234.5
Penna.	121.6	127.6	134.2	137.1	154.5	170.0
Reading	179.0	103.0	98.8	111.2	107.3	100.4
United of N. J.	70.0	92.3	74.4	75.3	75.2	98.6
Erie.....	102.0	138.7	145.0	160.0	185.3	194.7
N. Y. Cen.	139.4	168.1	180.4	163.7	184.1	194.7
Lake Shore.....	154.0	112.6	120.0	190.4	207.2	231.1
Mich. Cen.	135.0	147.0	158.0	167.0	190.0	190.0
Boston & Albany.....	80.6	82.0	80.7	88.0	92.0	94.2
C. C. & Ind.	80.7	85.8	88.9	90.1	98.8	111.8
At. & G. W.	98.4	95.2	97.7	93.9	99.4	102.5
Chic. & Alton.....	110.4	123.0	141.7	138.9	138.0	161.0
C. & N. W.	100.6	90.0	108.3	109.6	122.3	122.7
Ill. Cen.	94.0	80.5	90.9	97.4	112.5	114.5
C. M. & St. P.	73.9	87.0	85.9	87.3	82.8	79.8
H. & St. Jo.	79.5	71.0	80.2	91.0	105.0	118.4

* In 1879-80 the average load of the Erie was 210.5 tons. 4 In 1879-80 the average load of the New York Central rose to 218.9 tons.

Probably in some of these cases switching mileage is included in freight train mileage in the reports, so that we cannot always compare one road with another, but the main purpose of this table is to show the variations in average freight train loads on the same road, and this will be affected comparatively little by including the switching mileage. We find that with barely two exceptions (the Chicago Milwaukee & St. Paul and the coal trains of the Reading, there has been an increase in the average loads of late years, which in most cases has been very large, and nearly constant. Since 1874 it has been 41 per cent. on the Fort Wayne, 55 on the Philadelphia & Erie, 48 on the Pennsylvania, 89 on the United New Jersey, 50 on the Lake Shore, 17 on the Boston & Albany, 40 on the Cleveland, Columbus, Cincinnati & Indianapolis, 35 on the Chicago & Alton, 29 on the Chicago & Northwestern, 25 on the Illinois Central, and 49 on the Hannibal & St. Joseph. The Atlantic & Great Western, which has remained nearly stationary, we know to have had an unchanged stock of locomotives; the Milwaukee & St. Paul has a vast addition of new lines in new country on which light freight as well as passenger trains usually have to run for want of traffic, and this is true of

some roads which have nevertheless increased their train loads. In the Reading figures we suspect some errors for the coal trains; they have substantially no freight going in one direction.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:
New York, New Haven & Hartford, annual meeting, in New Haven, Conn., Jan. 12.
Boston & Lowell, annual meeting, at the office in Boston, Jan. 5.
Wabash, St. Louis & Pacific, special meeting, at the office in St. Louis, Jan. 17.
Louisville & Nashville, special meeting, in Louisville, Ky., Jan. 26. Transfer books closed Dec. 31.
Worcester & Nashua, annual meeting, in Horticultural Hall, Worcester, Mass., Jan. 18, at 10 a. m.
Philadelphia, Wilmington & Baltimore, annual meeting, in Wilmington, Del., Jan. 10, at 1 p. m.
Lehigh Valley, annual meeting, at the office in Philadelphia, Jan. 18, at noon.
Pittsburgh, Titusville & Buffalo, annual meeting, at the office in Philadelphia, Jan. 10, at noon.

Dividends

Dividends have been declared as follows:
New York, New Haven & Hartford, 5 per cent., semi-annual, payable Jan. 3.
Navigatuck, 5 per cent., semi-annual, payable Jan. 3.
Boston & Albany, 2 per cent., quarterly, payable Dec. 31. This is the first dividend under the new system of quarterly instead of half-yearly payments.
Cincinnati, Indianapolis, St. Louis & Chicago, 1½ per cent., quarterly, payable Feb. 15. This is the first dividend declared by the present company, and the first paid by the road for many years.
Hannibal & St. Joseph, 3½ per cent. on the preferred stock, payable Feb. 1. A dividend of 3 per cent. was paid last August, and was the first for many years.

ELECTIONS AND APPOINTMENTS.

East Tennessee, Virginia & Georgia.—Mr. John B. Wrenn has been appointed Southeastern Passenger Agent of this road and its controlled lines, with office in Atlanta, Ga. Mr. Wrenn is well known as an active and pushing agent.

East Tennessee & Western North Carolina.—The officers are: President, A. Pardee, Jr., Philadelphia; Chief Engineer, Thomas E. Matson, Elizabethton, Tenn.

Fitchburg.—Mr. George P. Johnson has been appointed Paymaster, in place of Mr. Thomas Whittemore, who will hereafter devote his whole time to his duties as Clerk to the President.

Indianapolis & St. Louis.—The Indianapolis Sentinel says: "After considerable inquiry it was learned that the management of the Bee Line and Indianapolis & St. Louis roads is to be consolidated on Jan. 1, and that on that day E. B. McClure will retire as Superintendent of the Indianapolis & St. Louis, and that the management of the two roads will be under control of E. B. Thomas. That A. J. Smith, General Ticket Agent of the Bee Line, will also assume the position of General Passenger and Ticket Agent of the Indianapolis & St. Louis, vice D. M. Kendrick, resigned. That H. W. Gays, now Assistant Freight Agent of the Bee Line, will take charge of the freight department of the Indianapolis & St. Louis, in place of E. B. Noyes, and that Edgar Hill, late General Freight Agent of the Louisville & Cincinnati Short Line, will replace Mr. Gays on the Bee Line. It is more than likely that a number of other changes will be made, but it is impossible to find out just what they will be. President Devereux and General Manager Thomas will leave this morning on a tour of inspection over the Indianapolis & St. Louis Road."

Indianapolis & Sullivan.—The officers of this new company are: President, Thomas S. Sprague, Detroit, Mich.; Vice-President, Amos D. Owen, Plainfield, Ind.; Secretary, B. F. Bush, Detroit; Treasurer, Henry S. Sprague, Detroit.

Lake Erie & St. Louis.—The directors of this new company are: Walston H. Brown, Calvin S. Bruce, Hiram W. Chase, J. H. Cheney, C. R. Cummings, George I. Seney, E. H. Waldron. The board has elected H. W. Chase President.

Louisville & Nashville.—Mr. G. C. Breed, Purchasing Agent, will for the present act as Assistant to the General Manager, in place of J. R. Shaler, resigned.

It is understood that Mr. J. T. Harrihan will be made Superintendent of the New Orleans & Mobile Division, in place of D. B. Robinson, resigned. Also, that Mr. Wm. Colecamp, now Road Master, will succeed Mr. Harrihan as Superintendent of the Memphis Line.

Mohearn, Princeton & Southeastern.—The directors of this new company are: M. M. Duffie, John E. Wylie, Jonathan Archer, Louis Ames, W. F. Smith, E. P. Chandler, Alexander Finckhback. Office at Malvern, Arkansas.

Manhattan Railway Employees' Mutual Benefit Association.—The following officers have recently been chosen: President, John D. Campbell; Vice-Presidents, John Blatchley, W. C. Crane; Financial Secretary, E. F. J. Gaynor; Recording Secretary, Robert Elkins; Treasurer, H. A. Webster; Sergeant-at-Arms, John F. Flynn; Examining Physician, Dr. J. S. Freer.

Memphis, Paducah & Northern.—Mr. H. W. Smithers, Receiver, has made the following appointments, taking effect Dec. 18: N. Monsarrat, General Manager; E. Buchner, Accountant and Cashier; C. W. Schaap, Auditing Clerk.

New York, Lake Erie & Western.—The following "Executive Order No. 4," is dated Dec. 24: "Robert Harris has been elected one of the vice-presidents of this company, and will act for the President in all matters connected with the roadway and structures, real estate, and the operations of the Transportation Department, and in the discharge of such other duties as the President may from time to time assign to him."

"Executive Order No. 5," dated also Dec. 24, is as follows: "George R. Blanchard has been elected one of the vice-presidents of this company, and will represent the President in its commercial and traffic departments and relations, including coal interests and the Union Steamboat Company, and in the discharge of such other duties as the President may from time to time assign to him."

Ohio & Mississippi.—Mr. H. R. Hanover is appointed General Road-master and Mr. E. S. Duval Superintendent of Bridges and Buildings, in place of S. R. Johnston, Master of Road, who goes to the Baltimore & Ohio.

Mr. Andrew Donaldson is appointed Auditor, in place of

E. K. Punnett, resigned. Mr. F. L. Jackson is appointed Paymaster.

Old Colony.—Mr. Samuel C. Cobb has been chosen a director, in place of Ephraim N. Winslow, deceased.

Pullman Palace Car Co.—Mr. George F. Brown, for a short time past Acting General Superintendent, has been appointed General Superintendent.

Mr. J. H. F. Wiers has been appointed General Manager of the new shops of this company in Chicago. Mr. Wiers has had wide experience on several different roads, and for nine years past has been General Master Car-Builder of the Atlantic & Great Western road.

Troy & Greenfield.—The old company, which still keeps up its organization, met in Boston, Dec. 27, and elected the following directors: Edward Appleton, Francis L. Chapman, Otis Clapp, F. H. Forbes, D. W. Gooch, Herman Haupt, Asa P. Morse, Henry B. Rice, Henry L. Sabin. The board elected Edward Appleton, President; F. L. Chapman, Clerk and Treasurer.

Western & Atlantic.—The following circular is dated Atlanta, Ga., Dec. 21:

"Mr. W. J. Walker has this day been appointed Southern Passenger Agent of this road, with headquarters at Jacksonville, Fla."

Wheeling & Lake Erie.—The board of directors has elected the following officers: President, W. A. Mack, Norwalk, O.; Secretary, C. E. Jenkins, Sandusky, O.; Treasurer, D. A. Baker, Norwalk, Ohio.

PERSONAL.

—Mr. E. B. McClure has resigned his position as General Superintendent of the Indianapolis & St. Louis road, to take effect Jan. 1.

—Mr. J. R. Shaler has, as previously reported, resigned his position as Assistant General Manager of the Louisville & Nashville road.

—Mr. D. B. Robinson has resigned his position as Superintendent of the New Orleans & Mobile Division of the Louisville & Nashville. He has had charge of the road for several years.

—Mr. Joseph Angell has resigned his position as General Passenger and Ticket Agent of the Delaware & Hudson Canal Company and its leased lines, to take effect Jan. 1 next.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows:
 Eleven months ending Nov. 30:

	1880.	1879.	Inc. or Dec.	P. c.
Northern Central.....	\$4,556,076	\$3,693,649	I. \$862,427	23.3
Net earnings.....	1,571,212	1,056,217	I. 514,995	48.6

Month of November:

Central Iowa.....	\$92,647			
Ind., Decatur & Springfield.....	36,050			
Northern Central.....	459,053	\$377,316	I. \$81,737	21.5
Net earnings.....	156,602	151,643	I. 5,559	3.7

Three weeks in December:

N. Y. & New England.....	\$147,320	\$137,599	I. \$9,721	7.0
Second week in December:				
Minn. & St. Louis.....	\$13,482	\$8,893	I. \$4,589	55.0

Third week in December:

Chi., Mil. & St. Paul.....	\$352,000	\$227,017	I. \$124,983	55.1
Denver & R. G. O.....	90,323	29,697	I. 60,626	204.1
No. Pacific, Eastern Div.....	48,800	24,073	I. 24,727	103.0
St. P., Minn. & Manitoba.....	78,500	42,000	I. 36,500	86.9
Week ending Dec. 17:				
Great Western.....	\$107,292	\$102,373	I. \$4,919	4.8
Week ending Dec. 18:				
Chicago & Grand Trunk.....	\$28,418	\$15,595	I. \$12,823	82.2
Grand Trunk.....	224,746	200,188	I. 24,558	12.3

Grain Movement.

For the week ending Dec. 18 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

Year.	Northwestern receipts.	Northwestern shipments.	Atlantic receipts.
1873.....	2,872,104		1,899,087
1874.....	1,872,171		562,245
1875.....	2,231,724		788,772
1876.....	2,711,045		1,168,217
1877.....	2,319,829		1,377,864
1878.....	2,972,744		1,599,045
1879.....	3,640,974		1,261,537
1880.....	5,012,357		1,437,614

Compared with the corresponding week of last year there is an increase of 18 per cent. in the receipts and of 14 per cent. in the shipments of the Northwestern markets and a decrease of 7½ per cent. in the Atlantic receipts. Northwestern receipts were never before so large in December.

Compared with previous weeks of this year, Northwestern receipts are a little larger than the week before; Northwestern shipments are 22 per cent. greater than the week before, but much smaller than the average rail shipments were before navigation closed; Atlantic receipts are 13 per cent. less than the week before and the smallest since February. They have, however, but once been larger in a December week after navigation closed.

Of the Northwestern receipts Chicago had 49.2 per cent., St. Louis 15.7, Milwaukee 12.3, Peoria 10.1, Toledo 8.1, Detroit 4.4, and Cleveland 1.2 per cent. New York's very small receipts are about the same as the week before, there is a large decrease at Philadelphia and a small increase at Baltimore.

Exports from Atlantic ports for five successive weeks have been:

	Dec. 22.	Dec. 15.	Dec. 8.	Dec. 1.	Nov. 24.
Flour, bbls.....	138,389	153,302	172,090	101,826	142,442
Grain, bush.....	2,363,848	2,646,707	2,460,577	3,003,993	4,112,718

The grain exports are the smallest we have yet reported. Receipts and shipments at Chicago and Milwaukee for the week ending Dec. 2 were:

	Receipts.		Shipments.	
	1880.	1879.	1880.	1879.
Chicago	2,482,332	1,696,586	930,270	731,058
Milwaukee	641,735	491,500	195,761	104,880

There is an increase of 47 per cent. in the receipts and 31 per cent. in the shipments at Chicago, and an increase of 27 per cent. in the receipts and 87 per cent. in the shipments at Milwaukee.

The following rough statement of the grain and flour

traffic of Chicago in 1880 and 1879 (1880, of course, being partly estimated) has been telegraphed:

Grain receipts:	1880.	1879.	Inc. or Dec.	P. c.
Flour, bbls.....	3,000,000	3,370,000	D. 370,000	11.0
Wheat, bush.....	23,000,000	34,000,000	D. 11,000,000	32.3
Corn, ".....	95,000,000	64,000,000	I. 31,000,000	48.4
Oats, ".....	22,000,000	17,000,000	I. 5,000,000	29.4
Rye and barley, bush.....	7,000,000	7,000,000		
Total, bush.....	102,000,000	140,850,000	I. 21,150,000	15.6
Total shipments.....	150,000,000	128,000,000	I. 30,000,000	24.0

Coal Movement.

Coal tonnages for the week ending Dec. 18 are reported as follows:

	1880.	1879.	Inc. or Dec.	P. c.
Anthracite.....	365,162	502,255	D. 137,093	27.3
Semi-bituminous.....	97,248	99,271	D. 2,023	2.0
Bituminous, Penna.....	51,045	58,045	D. 5,000	8.6
Coke, Penna.....	41,399	38,077	I. 3,322	8.7

Anthracite trade continues active, with prices well maintained.

A movement is on foot to improve the Youghioheny River by a series of dams, forming slack water navigation similar to that on the Monongahela. This will render accessible to Pittsburgh a large area of coal lands now almost untouched.

Pacific Through Freights.

Shipments of through freight eastward over the Central Pacific in November were: San Francisco, 9,680 tons; interior points, 3,650 tons; total 13,330 tons, or over 1,800 carloads. Leading items of freight were 2,895 tons barley, 2,811 tons wool, 1,028 tons tea and 704 tons wine.

THE SCRAP HEAP.

a Burning Railroad Car.

The rather novel spectacle of a conflagration on wheels, traveling at the rate of about thirty miles per hour, aroused the citizens of Lagrange from their slumbers just before 12 o'clock Friday night. The Short-line lightning express and passenger train, due here from Cincinnati at 12:45 o'clock on that night, was delayed at Sulphur Station, nine miles beyond Lagrange, by a burning oil box, and while it was being remedied the baggage-master left his car (which is used as a baggage and express car with a small room in the middle in which the Louisville mail is carried), and went out to where the train-men were putting new packing in the box. When he heard the whistle blow for Lagrange he started into the baggage car to get some baggage ready to put off at that place, and as he opened the door he was enveloped in a dense volume of smoke, and saw the centre of the car on fire. The front end of the car was occupied by L. S. Maddox, the L. C. & L. express messenger, and Charles Price, the messenger of the Adams, and the express freight belonging to the two companies. Maddox says he had smelled something burning for some time, but thought it was the "hot box" and did not pay any attention to it until he saw the fire burst through an opening in the partition wall behind the stove, between the little mail room and the express room. The car filled with smoke almost instantly, and as the freight was piled up against the door in the front end of the car Maddox and Price found they would smother unless they could get the side door open. While Price pulled the bell-rope to signal the engineer to stop, Maddox tried to remove the pin which kept the side door closed and open it. Price was so excited that he kept pulling the rope, which confused the engineer, and Maddox found the pin so tight that he could not remove it, and, with the train still running and the fire making rapid headway, the two beleaguered messengers felt that their doom was near at hand.

But Maddox kept tugging away at the pin, and finally removed and opened the door, but not until he was almost suffocated, and the fire had approached so close to him that his hair was singed. When the door was thrown open the two men, who were nearly fagged out, seized both of the door facings on either side and hung out of the car to breathe some fresh air and wait until the train checked up to escape from the fire. Their hands were severely burned as they held on to the inside of the car, as they waited patiently—each moment seeming an age—for the train to stop. They think the train must have run a mile and a half after the signal was given, but finally, just as they reached Lagrange, they felt their cremation furnace check up, and both leaped to the ground. It was a fearful ordeal through which they had passed, and as they let go their hold on the hot door-facing they thought little of the risk of being dashed against the ground. Fortunately they escaped without injury from that source, and the train stopped just as it reached Lagrange. By this time the air which had rushed in the open door had increased the impetus of the fire, and when the train stopped the interior of the car was filled with flames that darted out of the door through which they had made their escape, and as the paint on the outside was heated up to a good burning point, it was but a moment until the entire structure was wrapped in flames. There were ten trunks in the baggage end of the car, and the baggage-master succeeded in removing six of them into the coach before the fire got too hot, but everything else in the car was destroyed. —*Louisville, Ky., Courier-Journal, Dec. 13.*

A Station Agent's Experience.

He swaggered into the office this morning and asked for employment. He was a nobby young fellow with a little round hat, a heavy brass watch-chain and lovely red necktie with regular horse-shoe attachment. He was puffing away in the most approved style at a mammoth cigar which he occasionally flourished around exhibiting to the best advantage a magnificent dollar seal ring on the little finger of his left hand.

"Yes, sir," said he, "I'm lookin' for work. Writin' settin' type or sweepin' out—ain't 'fall partic'lar. I've—"

"What business were you last engaged in?" asked the reporter.

"Oh! I was station agent on the Wisconsin Valley Railroad, but I'd rather be a printer. I feel that I was born to be a printer, in fact, and you see, as a printer, a man has a chance to rise in the world."

"Why did you leave the road?" queried the reporter.

"Nothing crooked about that. I'm solid with the officials. Give me a station any day. Oh, yes, I'm all hunky there, but the fact is, I got scared, those cussed lumbermen take the starch out of a fellow. They are what you call funny men. Up to all sorts of dodges to make a man feel uncomfortable. First day I had charge of the station somebody stole a keg of beer while my back was turned. That cost me \$3.50. Next day a barrel of vinegar was lugged off, and that cost me \$30 more. Cleaned out of a whole month's wages at one fell swoop. Then one day a wild-eyed feller walked in and says, 'I say, you son of a gun, where's my vinegar?' and I says, 'I give it up,' and he says, 'You did, you,' and he sailed into me with his fist doubled up as big as a keg of nails. I drew my safe key on him, and that kinder toned him down, and he went off cussin'."

"That must have been a hard town to get along in."

"You're just talkin'." Wouldn't stay there for a thousand dollars a month. But that wasn't the worst. Feller up there had'n ox killed by the cars. Called on me several times for his pay—while the red tape was bein' put on the papers 'cording to Hoyle, you know—and finally the dabbled lunatic walked in one day and jabbed a big knife in the table, and says he:

"Give me money, or give me blood!"

Here the young man stopped talking, and took a long whiff at his cigar.

"Of course you—"

"Oh! I told him I had no money—bank account was over-drawn, and I knew there wasn't much blood in me, because I caught a glimpse of my face in a little lookin' glass just opposite, and saw such a sickly reflection that it actually scared me. I felt then that I ought to have been under a physician's care for weeks past. In fact I began to think of my parents, and wished I were at home again."

And he puffed furiously at his cigar.

"But what did the sanguinary citizen do then?"

"Haven't the slightest idea. Didn't stay to see. I just lit out through the freight window, and never stopped running till I reached the next station. From there the first train hurried me to my native heath." —*Milwaukee News.*

New Prussian State Railroads.

The railroads which the Prussian government has recently acquired show on the average a moderate increase of earnings compared with the corresponding months of last year, when they were under corporation management.

OLD AND NEW ROADS.

Boston Elevated Railroads.—In the matter of the petitions of the directors of the several associations for the formation of the Cambridge & South Boston Railroad Company, the Boston & Dorchester Railroad Company, the Boston & Brookline Railroad Company, and the Charlestown & Milton Railroad Company, praying for routes for their several proposed railroads, the Board of Railroad Commissioners report as follows: "The petitioners renew their request for routes, to be given under their petitions dated Oct. 13, 1880, in accordance with the views heretofore expressed by the Board."

"The duty of the Commissioners is to grant such routes as will best accommodate and least injure the citizens and land owners. The routes proposed were such as would most incommode the people and injure their property. Some of the most valuable estates in the city would have been destroyed; and the roads would have been placed where their operations would most disturb and endanger travel. A few particulars will demonstrate this. In Tremont street the road asked for would destroy the Museum, Kings Chapel, part of the Parker House, the Tremont Temple, St. Paul's Church, the United States Court House (if that can be taken), the Masonic Temple and the intervening buildings, or it would demolish, among other edifices, the Tremont House, Park street Church, the Hotel Pelham and Odd Fellows' Hall."

"The route requested on Washington street would destroy the Old South Meeting House, Jordan, Marsh & Co's building, the store of R. H. White & Co., the Cathedral, and the intervening buildings, or it would destroy the Sears building, the Herald building, and other valuable estates, including the Commonwealth Hotel. To ask for such routes was reckless. To have granted them would have been criminal."

For these and other reasons the commissioners decline to grant any route under the petitions.

Boston & Maine and Eastern Consolidation.—These companies have been for some weeks discussing a settlement of all differences, and a joint committee of the two boards have been considering the policy of a permanent agreement. It is said that this joint committee has now decided to recommend a consolidation of the two companies, and that a basis of agreement has been adopted.

The Boston Advertiser of Dec. 28, says of this matter: "Negotiations looking to the establishment of strictly mutual business relations between the Boston & Maine and Eastern Railroad companies have recently been revived, and there is good prospect that an arrangement satisfactory to all parties will soon be arrived at. The movement, if consummated in the manner proposed, will, however, come much short of consolidation, of which there is not even a remote prospect. Last spring a committee of five was appointed by the directors of each road to consult together in regard to operating the two roads on some plan that would be so far mutual as to avoid profitless competition and needless expense. This committee of ten appointed a sub-committee of three to prepare some practicable scheme to be submitted, after being approved by the committee of ten, to the boards of directors of the two roads for their confirmation. This sub-committee reported to the general committee on Wednesday last a plan of operations which was not acted upon at that time, but will be the business for consideration at an adjourned meeting of the general committee, which is to be held on Friday next. The details of this plan the sub-committee are not prepared to announce prior to the action of the full committee, nor will the action of that committee be final, for they will report whatever they shall decide upon to the respective boards of directors at special meetings to be called at an early day for the purpose of hearing and acting upon such report. The general features of the plan include a joint administration of the two roads under one management, so that all trains will be dispatched and fares regulated as one system. Wherever the two roads converge in the same town or city, there will be consolidation, so far as to have but one station and one set of officers for local administration. Fares to such points will be the same on each road, and tickets issued for such points for passage over one road, will be equally good upon the other. These points of convergence include Boston, Danvers, Newburyport, Dover, Great Falls and Portland, and the several independent offices, stations and organizations, being operated in each case as one, a great saving can be effected. Any exact estimate it would be impossible to give, but the annual saving will not be less than \$200,000, and may amount to \$400,000. The receipts of business as thus conducted are to be divided between the corporations in the ratio of the respective total earnings of the two of the past three years. The feeling is that both roads will be gainers peculiarly by this adjustment of their affairs, and it is certain that the public will reap an advantage, in that trains now run in competition at the same hours for the same points can be changed in respect to time so as to run at a different hour, thus giving more frequent departures, with no additional cost to the corporations."

Chicago & Indianapolis Air Line.—Track is now laid on this road from Dyer, Ind., on the Joliet Division of the Michigan Central, southeast to Lowell, 15 miles. The grading is nearly all done to Rensselaer, 45 miles from Dyer.

Chicago, Milwaukee & St. Paul.—This company

will probably build a branch from Mazomanie, Wis., on the Prairie du Chien Division north about 10 miles to Prairie du Sac, in Sauk County, with a possible extension to Baraboo. Local aid to a considerable amount has been offered.

Cincinnati, Sandusky & Cleveland.—The negotiations, which have been pending for several weeks, have resulted, it is said, in an agreement for the lease of this road to the Indiana, Bloomington & Western Company, at a rental of 25 per cent of the gross earnings, the lessee to guarantee a minimum of \$300,000 yearly. The agreement is subject to ratification by the stockholders of both companies.

Detroit, Butler & St. Louis.—The tracklayers working on the Detroit end of this road have reached Adrian, Mich., 57 miles from Detroit. On the western end of the road they are also advancing steadily. The road is all graded except a gap of about five miles west of Adrian.

Detroit, Mackinac & Marquette.—On the eastern end of this road track is now laid to a point 35 miles from west from the Straits terminus at Point St. Ignace. From Marquette, Mich., east track has been down 25 miles for some time, making 60 miles laid in all.

East Texas.—This road is now completed from Beaumont, Tex., north to Pine Island Bayou, six miles, and is graded for about ten miles further. Work has also been begun on the line from Beaumont to Sabine Pass, which was graded before the war, and is said to be still in very fair condition.

Grand Trunk.—A Montreal dispatch says: "It is understood that one of the principal objects of Mr. Hickson's recent visit to England was to make financial arrangements for doubling important sections of the Grand Trunk Railway, and that matters have so far progressed that the work is now going on and material is being purchased. On the section between Toronto and Montreal the sidings are being extended and made into stretches of two and three miles of double track, and this work will be continued vigorously during the ensuing summer. It is contemplated also to open additional crossing places for trains by constructing long sidings parallel with the main line. In this way the work of doubling the line will be gradually but speedily accomplished. It is also understood that large orders for additional rolling stock have been given."

Illinois River.—This company has filed articles of incorporation to build a railroad from Pekin, Ill., to Peoria, about nine miles. The incorporators are all connected with the Indiana, Bloomington & Western Company. It will, if built, be the third line between the two cities.

Indianapolis & Sullivan.—This company has been organized to build a railroad from Indianapolis by Plainfield, Cloverdale and Bowling Green to Sullivan, about 100 miles. The ownership and working of coal lands along the line is also included in the project.

Kansas City, Lawrence & Southern Kansas.—The following circular is dated Kansas City, Dec. 22:

"The Kansas City, Lawrence & Southern Railroad Company, the Southern Kansas & Western Railroad Company, and the Sumner County Railroad Company having consolidated, the railroads formerly owned by those companies, after Dec. 31, 1880, will be operated as one, under the name of the Kansas City, Lawrence & Southern Kansas Railroad Company."

"The local offices of the new company will be at Kansas City, and the local officers and agents of the Kansas City, Lawrence & Southern Railroad Company will act in the same capacity under the new organization."

The lines owned by the consolidated company are from Lawrence, Kan., by Independence to Harper, 270.8 miles; Olathe to Ottawa, 33.3 miles; Cherryville to Coffeyville, 18.2 miles; Wellington to Hunnewell, 18.3 miles; a total of 340.6 miles. An arrangement has been made, as heretofore noted, under which the road will be controlled by the Atchison, Topeka & Santa Fe Company.

Kentucky Central.—A dispatch from Cincinnati, Dec. 28, says: "Railroad and business circles were startled here to-day by reports that a new trunk line to the southern seaboard was soon to be built, more direct than the Cincinnati Southern, and not costing the city a single dollar. Investigation proved the rumors to be correct. A syndicate, composed of twenty Cincinnati capitalists, has purchased the interest of the Pendleton family and Peter Zinn in the Kentucky Central Railroad, thereby securing a controlling interest. About 30,000 shares of the stock were bought at 40 by Albert Netter and M. E. Ingalls, President of the Cincinnati, Indianapolis, St. Louis & Chicago Railroad. At the meeting of stockholders in February a new directory will be formed, and the new route to the seaboard will be immediately begun. The line will be as follows: By the Kentucky Central to Lexington, and over an extension of the Central to Lexington, Ky., where the road will connect with the Louisville & Nashville Railroad; thence to the Louisville & Nashville to the Tennessee state line, where the new trunk line is to connect with the Knoxville & Ohio Railroad, which is to be extended by the East Tennessee, Virginia & Georgia, which controls it, from its present terminus, Careyville, Tenn., to the junction at the state line specified; thence by the Knoxville & Ohio, the East Tennessee, Virginia & Georgia, and the Knoxville & Augusta Railroads to Charleston, S.C., forming an unbroken trunk line through the South to the Atlantic Ocean. The new road will enter this city over the Pennsylvania Railroad bridge. It will probably be in a better position to command the Southern trade than the Southern Railway, because of the combinations which will be made with the Pittsburgh, Cincinnati & St. Louis and other roads, north-west and west from this city, and it will be a through line to the seaboard for St. Louis and Chicago as well as Cincinnati."

Lake Erie & Western.—The last rail on the Sandusky Extension was laid last week, and this week regular trains begin to run over the new line. The extension from Fremont, O., east by north to Sandusky is 24 miles long, making the length of the whole main line from Sandusky to Bloomington, Ill., 378 miles.

Malvern, Princeton & Southeastern.—This company has been organized to build a railroad from Malvern, Ark., southeast through Princeton to a point on the Little Rock, Mississippi River & Texas road, near Hampton. It will be 65 miles long, and the capital stock is to be \$400,000.

Mexican National.—This company, which has the so-called Palmer-Sullivan concession for a line from the city of Mexico to the Rio Grande at Laredo or Eagle Pass, offers for subscription \$7,500,000 of its first-mortgage 6 per cent. bonds and an equal amount of stock. The terms are \$1,000 stock and \$1,000 bonds, the two to be taken together, for \$1,050 cash. Books were opened Dec. 28, to continue open three days. On the first day it was reported that the subscriptions were in excess of the amount offered.

Nashua, Acton & Boston.—It is announced that Mr. John F. Moulton, of Laconia, N. H., who owned nearly all this road, has sold his interest to the Concord Railroad Company for \$250,000. The road runs from Nashua, N.

H., to Concord Junction, Mass., 24 miles, and has been for several years leased by the Concord Company.

New Bonds.—New issues of bonds are offered on the market as follows:

The *Elizabethtown, Lexington & Big Sandy* offers through Fisk & Hatch, of New York, its first mortgage 6 per cent. bonds at 97½ and interest. The total authorized issue is \$3,500,000, of which \$2,500,000 are appropriated for construction and equipment of the road, which is the Chesapeake & Ohio extension to Louisville.

The *Panama Railroad Company* offers through Morton, Bliss & Co., of New York, an issue of \$3,000,000 new 6 per cent. bonds, having 30 years to run, secured by an assignment of the annual subsidy to the United States of Colombia, which is sufficient to pay the interest and \$45,000 as a sinking fund. The price is 107½ and interest. The company anticipates the sinking fund by taking \$600,000 of the bonds.

The *Toledo, Cincinnati & St. Louis*, which is to be the St. Louis extension of the Toledo, Delphos & Burlington, offers its securities in lump-fashion. Each subscriber is to receive for \$9,500 cash, \$10,000 first mortgage 6 per cent. bonds, \$5,000 income bonds and \$5,000 stock. Large subscriptions are said to have been received.

Northern (New Hampshire).—The Boston *Traveler* of Dec. 27 says: "A railroad war of a very important and bitter character seems to be impending in New Hampshire. For a long time past the feeling between the Central Vermont Company and the Northern (New Hampshire) has been anything but cordial. The former and the Connecticut River Corporation have also for some time been at loggerheads. These relations have recently been aggravated by the sale of the Sullivan road, now operated by the Central road, to the Connecticut River, and the former, in anticipation of soon being cut off from its use, is striving to get an independent line between Windsor and Bellows Falls. The building of the Forrest Line from Windsor to Greenfield, N. H., will practically accomplish this result. The Central Vermont people are anxious also to secure a consolidated trunk line from Chicago to Boston without going through Concord, and in their efforts to obtain this they are backed by the Grand Trunk and Boston & Lowell corporations. The leasing of the Nashua & Lowell by the latter was the first step in this project. The opponents of the Forrest line are determined, however, to prevent its accomplishment, if possible. They propose, among other things, to have the recently ratified lease broken off, on the ground of illegality, and a hearing to determine this question is to be given before the Governor and Council on Wednesday of the present week. The opposition to the building of the Forrest Line road comes from the Northern, Concord, Cheshire and Connecticut River roads, which make a pretty strong combination. It is plain to see that with the building of the Forrest Line road the heavy through freight, which now comes through Concord, would be sent wholly over the new route via Windsor and Greenfield, as would also the Central business, which now goes over the Cheshire road. The several railroads which will be concerned in this expected contest have retained a large number of lawyers and lobbyists, and the fight, if it comes, will be a terribly bitter one."

A despatch from Concord, N. H., Dec. 28, says: "It is stated that the Central Vermont Railroad yesterday withdrew from the roads between White River Junction and Boston all through freight for Boston for export, and is now sending it by way of the Cheshire and Fitchburg lines. There is a report that this action of the Central Vermont has caused dissatisfaction among some of its local patrons. It is rumored in Concord that one of the objects of the Central Vermont in sending through freight cars over the Cheshire Road is to compel the line through this city to accept the same rates for local business from the Vermont lines as are paid on through business from the West for Boston and for export. There seems to be no change in passenger traffic through here from the West, and the diversion of freight may be only temporary."

Northern Pacific.—President Billings has made the following statements to the New York *Times* as to next year's work on this road:

"There is to be an immediate increase of engineering and other official force to meet the requirements of the extensive work to be carried on. The plan of the bridge across the Missouri River at Bismarck has been adopted. Mr. George S. Morison, who was the engineer of the bridge recently built at Plattsmouth, has been appointed engineer of this work, and the board have directed it to be proceeded with immediately. Gen. Anderson, the Engineer-in-Chief, has just returned from the Yellowstone Valley. He has already contracted for ties and timber for 200 miles of that division, and his instructions are to accomplish in the coming year the largest possible amount of mileage construction up the Yellowstone Valley, with the view of closing up the central gap of 820 miles, and having the road running through in 1883. This central gap is from Glendive, where the Missouri Division ends on the Yellowstone, to the eastern end of the Pend d'Oreille Division, which extends 209 miles from Ainsworth, on the Columbia River, west to Lake Pend d'Oreille. The Pend d'Oreille Division will be completed in early spring. It is nearly all graded, the materials are all provided and on the spot, and the track is now going down. As soon as it is completed the work will be continued without interruption eastward, and with vigorous progress up the Yellowstone going west, and from Lake Pend d'Oreille going east, the company confidently expect to close up the central gap in 1883. In addition to this activity in the heart of the continent, work is to be commenced this winter on the 120 miles across Northern Wisconsin, to the Montreal River, being the extreme eastern division of the road, and steadily carried forward to completion. This division will form part of the Lake Superior South Shore line, running to the Sault Ste. Marie, connecting with the Canadian roads, and to the Straits of Mackinac, connecting with the New York Central and Pennsylvania systems. It also makes a new connection with Milwaukee and Chicago by the Wisconsin Central. Besides the work on the central gap and on the Wisconsin Division, the company propose, during the coming year, to begin the connection on the western end of the Pend d'Oreille Division with tide-water. The company is authorized by its charter to build a line down the Columbia River to Puget Sound, and also over the Cascade Range to the Sound. The Cascade Range surveys are nearly completed, and indicate a favorable route. It is probable that the line over the mountains will first be built."

"In speaking of the material for all this contemplated work, Mr. Billings said that 51,000 tons of rails, 46,000 of which are steel, have already been purchased, to be delivered during the year, with all the fastenings; 1,750 additional freight cars of different kinds, and 32 locomotives, with new passenger cars, etc. Twenty thousand tons of the rails are intended for the Pacific Coast, and shipments will be made at the rate of 2,000 tons per month, beginning in January. It is expected that the road will be running from Glendive, where it strikes the Yellowstone (to which point the track is nearly laid), up the Yellowstone to Miles City

next July, a distance of 789 miles. Passengers will be carried to the Yellowstone Park in July of the succeeding year."

Ohio & Mississippi.—Receiver King reports to the Court for November as follows:

Cash on hand, Nov. 1.....	\$521,361.39
Receipts for the month.....	561,093.18
Total.....	\$1,082,454.57
Disbursements.....	871,435.41

Balance, Dec. 1.....\$211,019.16

The disbursements were \$310,342.23 greater than the receipts. Large payments of interest are included.

Philadelphia & Reading.—A dispatch from London, Dec. 28, says: "A meeting of bond and share holders of the Philadelphia & Reading Railroad to-day, after some opposition by the supporters of Mr. Powell, passed unanimously the motion of Sir Henry Tyler, expressing confidence in President Gowen and adopting his scheme."

It is understood that the opposition to Mr. Gowen has selected as its candidate for President (who is elected directly by the stockholders of this company) Mr. Frank S. Bond, who is well known as a capable officer, and is now Vice-President of the Texas & Pacific.

The Philadelphia *North American* (which does not favor Mr. Gowen) of Dec. 29, sums up the chances of the coming annual meeting as follows:

"It is apparent already that the *North American* was right in its statement of six weeks ago that Mr. Gowen could not have the McCalmont proxies for the coming election. In his letter to the London *Times* yesterday, which was cabled to the American press, he says: 'Even if the vote referred to were cast against the present management, it could succeed in accomplishing no change, the greater part of the capital of the company being held in the United States.' From this it is apparent that he has not got the control of the McCalmont proxies, and from a later paragraph in his letter it is plain that he yet has hopes of securing them, for he says that the annual meeting of the company will be postponed. President Gowen's letter to the London *Times* is as follows:

"Referring to the telegraphic correspondence from America published in the *Times* this morning, and indicating a change in the management of the Philadelphia & Reading Railroad, I have to say that even if the vote referred to were cast against the present management, it could succeed in accomplishing no change, the greater part of the capital of the company being held in the United States. The very influential American committee, appointed upon the direct request of the English committee, has unanimously recommended the present management for re-election. Before I left Philadelphia I believed that such a course was assured, irrespective of the vote of any English shareholder; but the very gratifying resolutions adopted at the Cannon street meeting on Thursday, in my opinion, secure it beyond peradventure. The issue of deferred income bonds will be made within a few days, and as my presence here pending that issue is a necessity, the election, which would otherwise have taken place on Jan. 10, will be postponed to enable me to be present and vote upon the proxies which I hold."

"This letter does not read well, in view of the developments of the last few days. If the statements are correct as to the amount of stock controlled by the McCalmont interest, they have 207,000 shares at the mercy of Messrs. Hugh and Robert McCalmont and Mr. Thomas Wilde Powell. Besides this, it is known that a single gentleman in this city will vote 18,000 shares against the continuance of Mr. Gowen in the presidency, and that no less than 13,000 shares bought in accordance with the advice of Mr. Gowen have been sold during the past fortnight, and will therefore be disfranchised at the coming election. Mr. Gowen in his circular to the stockholders, asking for their proxies, admitted that there were 64,000 shares bought against him, but claimed that 34,000 of them could not be voted, owing to the fact that they had not been transferred within the time prescribed by law. The total number of shares in the company is a little over 680,000, and the largest number voted in the last ten years has been 275,000 are old shares. Now if the McCalmont shares and voted against Mr. Gowen, and the 31,000 which Mr. Gowen says are disfranchised prove to be so, together with the 13,000 mentioned above, we shall have 47,000 shares that we know of deprived of the right to vote and 225,000 shares pledged against Mr. Gowen. If this statement is correct, there is no possible chance of his election for another term save in one way."

"It was said in the Reading office on Monday that Mr. Gowen had sailed for home, and it was as promptly denied outside of the office. His letter to the *Times* yesterday proved that the outside information was most correct. It is quite possible that he still remains in London with a view to placing the deferred income bonds, and thereby inducing the McCalmonts to reverse their decision and give him another opportunity. It is apparent that he has all along kept in view in this country the idea that American bankers were anxious for the deferred income bonds, and in Europe the theory that he could place them in America without the least trouble. In London he has relied upon Philadelphia, and in this city he has pinned his faith on Gowen. The tone of President Gowen's dispatch, printed above, clearly indicates that he hopes to secure such financial indorsement of the deferred income bond scheme as will enable him even at this late date to secure for himself the McCalmont proxies, for it is impossible that he can retain the control of the road without them. It is given out that the present board of managers represent less than 2,000 shares of stock of the company, a smaller amount in the aggregate than is owned by at least one member of any of the large railroad corporations of the city. It is well known that when Mr. Adolph E. Borie died he did not hold a single share of the company's stock, though he was a very large holder of its bonds, and it is said that no member of the board holds as much as 1,000 shares, while it is well known that individual members of the boards of the Pennsylvania, Lehigh Valley, or Pittsburgh, Titusville & Buffalo, hold more shares than are registered in the names of the entire board of the Reading put together."

"It will be noticed with some surprise that President Gowen writes to the London *Times* two weeks in advance of the annual meeting of the company, that 'the election, which would otherwise have taken place on Jan. 10, will be postponed to enable me to be present and vote on the proxies which I hold.' This is assuming a great deal, for the election can only be postponed by a vote of the majority of the stock, and if the majority is adverse to President Gowen, it can proceed to an election then just as well as it can a month hence. It was freely suggested last evening that matters had come to such a pass that an application would be made to the United States District Court to-day for an injunction to prevent the holding of the annual meeting at the date called for by the charter of the company, in order that time might be given for the return of President Gowen. This would hardly seem possible; but the company is entirely under the jurisdiction of the court, and it is possible for Judge McKennan to do just as it pleases him in the matter."

"Several gentlemen have been proposed for places in the

board of managers in spite of the statement of an adverse interest that they do not hold any large amount of stock of the company—an objection which the present board ought to be the last to raise. Mr. George F. Tyler, whose name was mentioned in the *North American* yesterday morning, was formerly a member of the firm of Tyler, Stone & Co., coal dealers. During the war he made a large fortune and retired from business. He is a director of the Pittsburgh, Titusville & Buffalo Railroad. William Sellers is a well-known manufacturer and machinist of large means. Chas. S. Lewis is a director of the Fidelity Trust & Safe Deposit Company. Lindley Smyth is the President of the Pennsylvania Company for the Insurance of Lives and Granting Annuities. E. A. Rollins was formerly Commissioner of Internal Revenue, and is now at the head of the Centennial National Bank of West Philadelphia. George Whitney is a member of the firm of A. Whitney & Sons, whose car wheels are used in all parts of the world. J. W. Jones was for many years Vice-President of the Reading Railroad Company and is now President of the Pittsburgh, Titusville & Buffalo Railroad Company. His knowledge of Reading affairs is probably equal to that of any of the gentlemen named. Charles E. Smith was for eight years President of the Reading Railroad Company during the most prosperous days of that organization. It is hardly necessary to say that the use of Mr. Caldwell's name is without consultation with him, but was suggested by the fact of his close connection with the affairs of the company and the belief that it would add strength to a ticket that might be suggested. Of Major Bond it can only be said that he is in an unenviable position just at present, for he must necessarily be in the hands of his friends. He does not seek the position; he could not refuse it if elected. He is, as was said yesterday morning, a man of marked ability in railroad management. He is a son of the Rev. Dr. Bond, of Norwich, Conn., still living at the age of upward of 80 years. He is 50 years old, and has been engaged in railroading for the last 30 years. He was for many years at the head of the Cincinnati & Dayton road, and is at present the Vice-President and executive officer of the Texas & Pacific, and Vice-President of the Missouri, Kansas & Texas road. His thorough acquaintance with railroad matters, and the fact that he is far removed from any of the strifes which have of late agitated the Reading Company, render him the most available and promising candidate at this time."

Port Huron & Northwestern.—The rails are reported all laid on the Marlette Branch, which is 33 miles long, leaving the main line at Balmer's, 13 miles from Port Huron, and running to Marlette in Sanilac County. With the 70 miles of main line this makes 103 miles owned by the company.

Richmond, Fredericksburg & Potomac.—Notice is given to holders of the first mortgage 8 per cent. bonds, which will mature Nov. 1, 1880, that they have the option, until March 1 next, of extending their bonds for 20 years from the date of maturity at 6 per cent. interest. Bonds not extended will be paid at maturity.

St. Paul & Duluth.—A report telegraphed from St. Paul that this road had been leased to the Chicago, St. Paul, Minneapolis & Omaha Company has been denied by officers of both companies.

Salamanca & Warren.—This company has filed articles of incorporation to build a railroad from Salamanca, N. Y., southwest to the point where the Allegheny River crosses the Pennsylvania state line. The distance is about 22 miles, and the capital stock is fixed at \$220,000.

Sevier Valley.—This company has been organized in Utah to build a railroad from Ogden down the Salt Lake Valley, over the Sevier Pass and by the headwaters of the Colorado into Arizona, about 600 miles in all. The stock is \$10,000, and the incorporators are George A. Lowe, Michael T. Burgess, J. A. Porter, Charles W. Bennett, B. B. Vandusen, Gouverneur M. Forbes, Adam S. Patterson, G. K. Gilbert, Watson Goodrich and John T. Lynch.

Somerset & Cambria.—In the matter of the application of the Pennsylvania Railroad Company to restrain this road from crossing the old canal feeder near Johnstown (which is owned by the Pennsylvania), the Court has dissolved the injunction, only requiring the Somerset & Cambria Company to give security for payment of such damages as may be awarded for land taken.

Track is now all laid on the road, which is 37 miles long, from Somerset, Pa., to Johnstown. It is an extension of the old Somerset & Mineral Point road, and is owned by the Baltimore & Ohio Company, giving that company a branch from its Pittsburgh Division to Johnstown, which is expected to secure some business from the large iron-works at that place, and also some traffic in West Virginia ores to the furnaces there.

Southeastern, of Canada.—During the last 15 months, since the present management took possession, 5,700 tons of steel rails have been laid in the track, while the equipment has been increased by 15 engines, 5 passenger, 370 freight, 5 caboose cars and 2 snow-plows.

The company has begun work on its track across the St. Lawrence at Montreal on the ice. It will be laid in the same manner as last winter.

Spartanburg & Asheville.—The United States Circuit Court has decided, in the foreclosure suit against this road, that the claims of the contractors and others, for wages, materials, etc., must be held as subordinate to the mortgage. The decision covers all cases, whether the claimants have filed liens upon the property or not. The report of the Master in the case is confirmed and a decree will be made in accordance therewith.

Summit Branch.—This company makes the following statement of its operations and of those of the Lykens Valley Coal Company, which it owns, for the eleven months ending Nov. 30:

	R. R. Co.	Coal Co.	Total.
Gross earnings.....	\$937,789.24	\$628,423.66	\$1,566,212.90
Expenses.....	805,376.92	594,295.00	1,399,671.92
Net earnings.....	\$132,412.32	\$34,128.66	\$166,540.98

For the complete year 1879 there was a deficit on the operations of the combined companies of \$22,580.70.

Tawas.—It is proposed to extend this logging railroad, which now runs from Tawas, Mich., back into the pine forest, some 12 miles further to a connection with the Jackson, Lansing & Saginaw, near Sterling.

Wabash, St. Louis & Pacific.—Notice is given that on Jan. 1 this company will reduce its local fares to three cents per mile over all portions of its line.

Western North Carolina.—It is said that the officers of this new company will be indicted under an act passed by the North Carolina Legislature several years ago, prohibiting any change of gauge from 4 ft. 8½ in. under severe penalties. The gauge of this road has lately been made 5 ft. to suit that of the lines with which it will connect westward when finished.

e
f
t
e
?
-
r
r
f
e
e
z
z
f
-
t
y
-
s
a
e
d
l
0
0
l
t
r
l
l
i
a
e
e
s
s
s
s
n
e
s
h
-
-
-
-
s
s
s
e
e
h
-
t
e
e
s
s
f
t
t
t
e
t
a
l
s
e
e
n
n
00
22
98
ne
d,
one
at
ce
rs
by
it-
ft.